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Some Telephone Figures.

Government statistics are seldom up to date, but naturally they carry more authority and attract more attention than those compiled by private individuals, even though the latter are more recent. The federal census bureau has just completed its preliminary report, which appears in full on another page of this issue, covering the telephone industry of the United States for the five years ending in 1912.

No matter how familiar a telephone man may be with the immense scope of the business, the cold figures cannot but make him open his eyes in wonder. Think of thirteen and three-quarter billion telephone messages in the year 1912, and that only included those of companies with an income of $5,000 or more! Added to this stupendous sum belong the messages transmitted through the 1,402,844 telephones on the lines of the smaller companies. Really, it is enough to stagger the most vivid imagination. Besides, that was for 1912, and we all know the telephone does more work now than it did then.

During the year 1912, says the census report, the length of wire used in telephone lines in the United States totaled 20,248,236 miles. This represented a gain of 15,347,875 miles since 1902, or an increase of 313.2 per cent. for the ten years. In 1912 there were in operation 8,729,592 telephones, or 6,358,548 more than in 1902, being a gain of 268.2 per cent. in the decade.

The census report shows that the Bell system made larger gains in recent years than the Independents, which, no doubt, is due to the fact that the Bell was busy absorbing locally owned plants where it was found cheaper to buy than to carry on an unprofitable fight. However, the Bell has agreed to stop this practice and has stipulated with the government to cease making mergers for the purpose of ending competition, so such gains will probably not be noted in future reports.

These figures, however, furnish a striking illustration of the wonderful strides made by the telephone and must convince the men in the business that they are connected with an industry which is one of the marvels of the commercial history of the country. It would be difficult to find a business which has made such progress in the last ten years. That its future holds an even more substantial prospect, no one can deny, for the events of the last six months promise a safer and saner management of telephone affairs than in the past.

Artificial Telephone Lines.

It is only in the last few years that operating telephone companies have come to a realization that an artificial telephone line is something more than laboratory apparatus; that it can be utilized to great advantage by them in many ways. The awakening interest in telephone transmission has been an influential factor in promoting the use of artificial lines for practical testing purposes.

The larger operating and manufacturing companies have used the artificial telephone lines for a number of years, but knowledge of the practical advantages of their use has not been generally appreciated by the telephone operating field.

By the use of artificial cable, actual line conditions may be obtained without the use of actual cable. Comparison may then be made, by means of listening tests, of the transmission over the actual line and over the artificial line. The ear, it has been demonstrated, provides the best means for measuring transmission as it picks out all the different effects which enter into transmission, something which no instrument has, as yet, been able to accomplish.

In addition to being used for measuring and comparing the transmission losses in a circuit, the artificial cable may be used for determining the effect on transmission of induced noises, including cross talk. Another use of the artificial cable is in determining the efficiency of transmitters and receivers. The article on "Construction and Use of an Artificial Telephone Line," which appears on other pages of this issue, will be of interest to telephone men, as Mr. Smith tells how an artificial cable may be made of much practical use to operating telephone companies.

The Good Old Times! There Were None!

By HERBERT KAUFMAN

Cause for complaint? Tommyrot! Twist your frown into a smile; change your grumble into a hurrah, and thank Providence that you are lucky enough to participate in the greatest period of history.

The past was only a helter-skelter; a narrow, aimless road along which humans for hoary centuries kept blindly groping, hitting and missing their way onward, advancing by accident, hampered and fettered and handicapped at every turn. The Stone Age and the Bronze Age, the Age of Heroes, the Age of Art and the Age of Exploration were, by contrast, puny little trickles in the glass of Time.

Until a near yesterday ago, might was the only right. The millions were the slaves of misery, chained by ignorance, servile and cringing and helpless. Society classified its members by origin; 90 per cent. of children were born with inevitable and alloted futures. The son of the laborer was heir to his drudgery.

The most predaceous, audacious, arrogant and impregnable monopoly ever conceived—the great Trust of Aristocracy—dominated power, owned office, cracked the whip over labor and capital alike, secure behind self-erected barricades which withstood every assault and every protest, except the torch of revolution.

The greatest brute was the greatest lord; the long sword and the strong arm were the tools of success; Bigotry and Lust and Force sat in triumvirate sway over the universe. Tinseled puppets seized what suited their fancy. There was no justice for the average. Science wore the cap of the charlatan; the physician was tolerated and despised; Minerva was a scullery drab in the household of Mars; Learning, a Lazarus, supported by the crumbs of dives.

The glories of the Renaissance? Fiddlesticks! Even mediaeval palaces were lit with rush lights and flambeaux. The chilling blasts of winter roared and poured without hindrance through the royal household. Summer, with its winged pests, was a nuisance by day a torture by night.

There were no safeguards to communal health. Epidemics swept the land without warning and without check. Sanitation was a mystery. The very nobility knew fewer real comforts and conveniences, than you can command with a weekly wage.

As late as the Eighteenth century, the general lot was crude and mean. Your rich grandfather suffered discomforts, compared with which your surroundings are luxurious.

Occupations were few and their scope limited; artist and artisan alike were miserably rewarded. Ambition found barriers everywhere. Hampered by restrictions of opportunity and training, it took double your skill and double your will to make the headway that you have achieved.

The "good old times?" There were none! They are here now. You are getting more and paying less for it in effort and hours, your welfare is guarded with more privileges, your independence is more thorough, your rights are more absolute than those of any generation since Ancestor Adam developed a fondness for apples.

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Construction and Use of an Artificial Telephone Line

Electrical Properties to be Considered in Making Artificial Telephone Lines—Elementary Theory of Speech Transmission and Standards for Comparing or Measuring Transmission—Artificial Cable for Practical Testing—Practical Uses of Cable by Operating Companies

By N. N. Smith

The theory, methods of construction, and possible uses of artificial telephone lines in practical telephony do not seem to be very generally understood among practical telephone men. Outside of a number of the larger operating and manufacturing companies and a few of the leading universities, very few artificial telephone lines are available, and the advantages of using apparatus of this kind are not generally appreciated. It is the purpose of this article to explain how a simple artificial telephone line may be made up, and to show some of the uses which may be made of artificial lines.

By an artificial telephone line is meant a device which possesses all of the electrical properties of a telephone line, but which is made up in compact form and can be used to represent a line under the various conditions found in actual telephone practice without the necessity of using the actual line itself. Artificial telephone lines may be divided into two classes, aerial and cable, since the electrical constants of these two kinds of lines are different.

An aerial telephone line possesses inductance, capacity, resistance and insulation leakage, while telephone cable, as manufactured today, possesses negligible insulation leakage and inductance but relatively high capacity and resistance.

Capacity and resistance only need to be considered in so far as speech transmission is concerned when dealing with cable conductors. On this account the construction of an artificial cable is simpler than that of an artificial aerial line. Also, transmission over cable conductors, rather than over an aerial

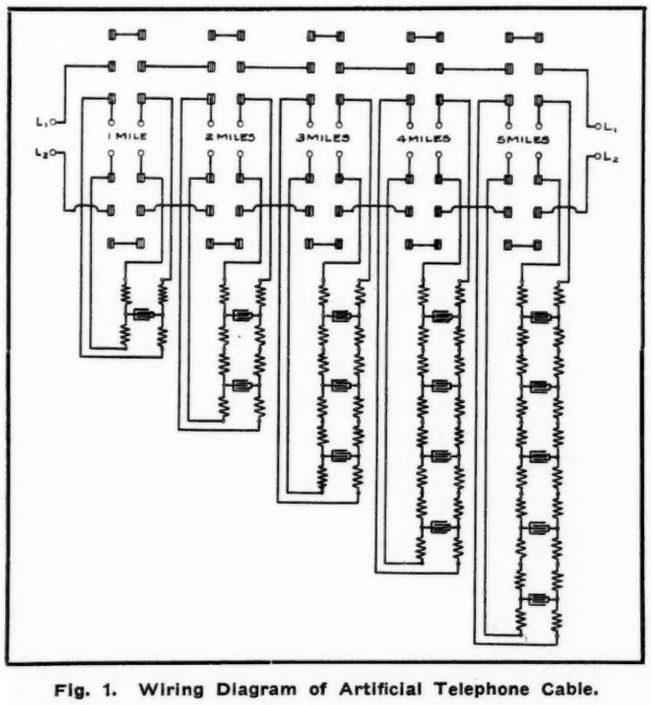


Fig. 1. Wiring Diagram of Artificial Telephone Cable.

line, is usually taken as the basis of comparison in studies of transmission. This article will, therefore, deal with artificial cable rather than with artificial aerial lines.

Artificial telephone cable may be obtained in two forms, a precision type made up for accurate laboratory measurements, and a form suitable for practical testing in the field. The practical telephone man is concerned more especially with the latter form. Such a form of cable has the advantage also that it may be made up by any practical electrician and does not require expensive material.

Before considering the make-up of artificial cable in detail, it is well first to consider the elementary theory of

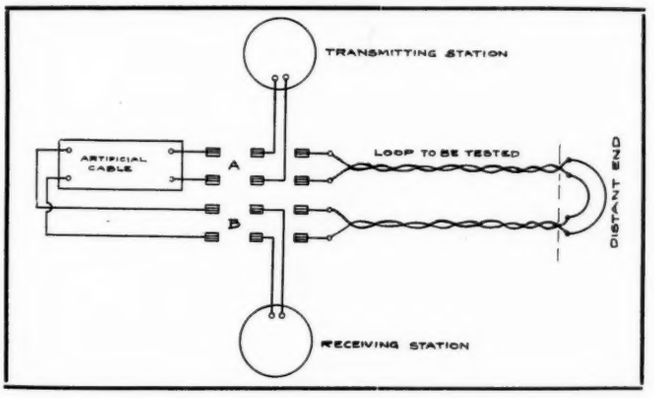


Fig. 2. Comparing Losses in Conductors and Artificial Cable.

telephone speech transmission and the standards ordinarily used in measuring or comparing transmission. Without going into the theory of speech transmission over telephone wires and cables in detail, it may be stated that transmission may be estimated in advance, if the constants of the line are known. For the purpose of estimating transmission in this way, it is necessary to calculate the attenuation constant of the line which, in turn, involves the resistance, capacity, inductance, and leakage. The greater the attenuation constant, the greater will be the loss in transmission per mile of line. The formula for the attenuation constant of a telephone line at any given frequency of current, is

$$a = \sqrt{1/2\ \sqrt{(R^2+p^2L^2)(S^2+p^2C^2)} + 1/2\ (SR-p^2LC)};$$

Where R equals loop resistance of the conductors; L, the inductance; C, the mutual capacity; S, the dielectric leakage; and p equals 2π times the frequency.

In the ordinary dry core paper insulated telephone cable, the dielectric leakage, at telephonic frequencies, is small enough to be negligible. If the cable is not loaded with inductance coils, the inductance L is also negligible. Putting then $L=0$ and $S=0$ in the above formula, it becomes $a=\sqrt{1/2pRC}$. This formula shows that the attenuation constant of a telephone cable is proportional to $\sqrt{CR}$ for any given frequency. This enables one to compute the relative efficiency of various types of cable by computing the value of $\sqrt{CR}$. To compare transmission over two different cables, it is only necessary to know C and R for each cable. The transmission loss is then proportional to the square root of the product of these quantities, or, put in another way, the relative efficiency of any two cables is inversely proportional to $\sqrt{CR}$.

Transmission is best measured by the human ear, as no instrument has thus far been devised which will measure, as does the ear, all of the different effects which go to make up transmission. It is not possible to measure speech transmission with ammeters and voltmeters as is measured power, for example, in problems involving electrical energy. For this

reason it is usual to compare transmission losses encountered in actual telephone lines, to the losses in a "standard circuit" which consists of a No. 19 B. & S. gage cable connecting two telephone instruments, one at each end, through repeating coils. The No. 19 gage cable used in such a standard circuit is known as standard cable, and is usually taken as a cable having R=88 ohms and C=.054 microfarad per mile.

Conversation can be carried on very easily over this standard circuit when 20 miles of standard cable is inserted. Conversation is commercially possible over 30 miles and has been carried on with success by those who have trained ears, over as much as 45 miles of such cable.

By means of the simple law previously stated and the standard circuit, if the capacity and resistance of any dry core paper insulated telephone cable is known, it can be determined how it compares with standard cable in regard to transmission of speech. Thus, for example, a No. 16 B. & S. gage telephone cable has a mutual capacity of something like .070 microfarad per mile between conductors of a pair and 44 ohms resistance per mile loop. In this case, $\sqrt{CR}=\sqrt{.070\times 44}=1.76$. In the case of standard cable of .54 microfarad mutual capacity per mile and 88 ohms loop resistance per mile, $\sqrt{CR}=\sqrt{.054\times 88}=2.18$.

Since transmission is inversely proportional to $\sqrt{CR}$, the No. 16 gage cable affords better transmission than standard cable in the ratio of $\frac{2.18}{1.76}=1.24$ or, to put it in a different way, the loss in transmission of speech when talking through 10 miles of standard cable with the standard circuit, is the same as the loss in transmission when talking through $\frac{2.18}{1.76}\times 10=12.4$ miles of No. 16 gage cable. In other words, one could converse through 12.4 miles of the No. 16 gage cable as well as he could converse through 10 miles of standard cable. This simple law of telephone transmission over cable conductors is true to a remarkable degree of precision and enables one to quickly estimate the comparative value of different kinds and gages of dry core telephone cable as far as telephone transmission goes.

Construction of Artificial Cable.

In actual cable the capacity C, as well as the resistance R is distributed uniformly over the whole length of cable. In artificial cable it is not possible to distribute the capacity in this way and obtain a compact form of cable. It is customary, therefore, in making up artificial cable, to lump the capacity at frequent intervals, in the form of condensers bridged across the line. The line resistance may be represented by resistance coils, and since the inductance and insulation leakage may be considered negligible, the artificial cable in its simplest form consists merely of resistance coils and condensers. These are chosen on the basis of the resistance and capacity of actual cable.

It is found that if the capacity is lumped at intervals greater than that which corresponds to from two to three miles of actual cable, the results of transmission tests with the cable are not accurate; that is, the cable does not accurately represent actual telephone cable of the same capacity and resistance. The best results are obtained, therefore, by taking the mile of cable as a unit and using a separate condenser for each such unit to represent the capacity. This condenser is bridged across the middle of two resistance coils, each resistance coil representing the resistance of one mile of a conductor of the cable.

The circuit may be conveniently arranged as shown in Fig. 1, with switches for switching in and out as many miles as desired. A cable of about 20 to 30 miles is most convenient for all around testing. For simplicity only a 15-mile cable is shown in the diagram. By taking advantage of the $\sqrt{CR}$ law of transmission over cable conductors, as already explained, one may choose C and R in any convenient way, within reasonable limits, and interpret the results of tests over such cable in terms of cable having other values of C and R. Thus, if the artificial cable were made up with a capacity of .06 microfarad per mile and a loop resistance of 90 ohms per mile, then $\sqrt{CR}=2.32$. Comparing this with the constant of 2.18 already obtained for standard cable, it is seen that one mile of such artificial cable is equivalent, as far as transmission is concerned, to $\frac{2.32}{2.18}=1.06$ miles of standard cable.

For the construction of a cable such as is described, it will be found satisfactory to use ordinary commercial condensers and resistance coils. The condensers should be chosen very carefully, both with regard to possible changes in capacity due to age or atmospheric conditions, and also with regard to their true capacity. The capacity of some forms of commercial condensers used in telephone work is subject to change. Furthermore, the actual capacity of such a condenser often differs from the rated capacity by as much as 10 per cent. or 15 per cent. By means of a standard condenser and galvanometer, however, it is easy to run over a stock of condensers and pick out a number which will come within 5 per cent. of the required capacity. Since commercial condensers of 0.1 mf. rated capacity are available, it is convenient to take the capacity of the artificial cable as 0.05 mf. per mile, so that the capacity of the different units which make up the cable will be multiples of 0.05 mf. and can be obtained by the use of 0.1 mf. condensers.

The resistance coils to represent the resistance of the cable conductors may be of the commercial form used in telephone work but should be wound non-inductively with German silver wire or some wire having a low temperature coefficient. It will be convenient to use coils such that the loop resistance of the cable will be about 90 ohms per mile so that it will approximate the resistance of a No. 19 B. & S. gage cable.

In Fig. 1 is shown one form of cable in which a separate condenser and separate resistance coils have been used for each mile of cable. This is the most satisfactory design of cable but good results may also be obtained by combining the capacity and resistance of the cable into two-mile units instead of one. In this case, the condensers would have to be of 0.1 mf. capacity instead of 0.05 mf. as is the case in Fig. 1 and the resistance coils must be of twice the resistance. The apparatus necessary with the circuit shown in Fig. 1 may be readily mounted in a small box with hinged cover. The switches and binding posts should be arranged on a base so as to be readily available when the cover is removed and the condensers and resistance coils may be mounted below the switches in the body of the box.

Uses of Artificial Cable.

The value of an artificial cable in telephone work lies in its adaptability to various circuits in setting up actual conditions without requiring the use of actual cable. The human ear is much more sensitive when comparing rather faint sounds than when comparing loud sounds. That is, the loss in volume of sound may be so slight, compared with the total volume of sound, that the loss cannot be detected except where the total volume is small. It is desirable, for this reason, to be able to insert sufficient cable into a circuit, when testing, to make the effect of other losses readily noticeable.

Some of the tests which may be made with a form of artificial cable such as has been described, will now be explained.

(1) The transmission loss in a telephone circuit or line may be measured by direct comparison with the known loss in an artificial cable. This test requires that the transmitting and receiving ends of the circuit or line be near together. This may be brought about by looping the circuit back. Thus,

to measure the loss in a cable, two pairs of conductors are picked out and looped at one end of the cable so that both the transmitting and the receiving may be done from the other end.

It will then be possible to arrange to switch the transmitting and receiving stations from the looped cable conductors to the artificial cable or vice versa as shown in Fig. 2. Two testers are required. One tester talks or counts in an even tone of voice at station "A", while the other tester listens at station "B". The switch is thrown to one side and then to the other, comparing the receiving on the two sides.

If the receiving is better over the artificial cable than over the line loop, the artificial cable is adjusted by cutting in more miles of cable by means of the switches, until the receiving is as nearly the same on either position of the switches *A* and *B* as it is possible to make it. The number of miles of artificial cable in circuit then gives a measure of the transmission loss in the loop of cable or line which was chosen for test.

(2) To compare the loss in one circuit directly with that in another: This test requires that switches be arranged as in Fig. 3, so that the testers may switch simultaneously from one circuit to the other and obtain a balance between the two circuits by adding artificial cable in series with the one which gives the best transmission. An amount of cable is added which will cut down transmission to an extent sufficient to make the transmission equal in both circuits, no matter which way the switches are thrown. Thus, if it is found that it is necessary to add 15 miles of artificial cable to one of the two circuits which are being compared to make the loss in both circuits the same, it is known that one circuit is 15 miles poorer in transmission than the other.

(3) To determine the transmission loss in a circuit by adding artificial cable in series with the circuit until the limit of commercial transmission is reached: This use of artificial cable is based on the assumption that a commercial grade of transmission cannot be carried on over more than about 35 to 40 miles of standard cable in the standard circuit and that this limiting distance is a figure which is fairly constant under all conditions. Strictly speaking this is not the case, but if the test is made each time by trained observers and if conditions as to extraneous noise, etc., are the same each time, this method of estimating transmission is fairly accurate. It is the only method which can be used, in many cases, where it is not possible to secure a loop of conductors and make the test by direct comparison. For a rough estimate of transmission, this method is very convenient, as it is usually easy to insert the artificial cable in series with a telephone line and thus obtain a measure of the transmission as explained above.

(4) Determination of the effect of induced noises, including cross talk, on telephone transmission: With the general introduction of high tension lines and alternating current railway systems throughout the country, much trouble has result-

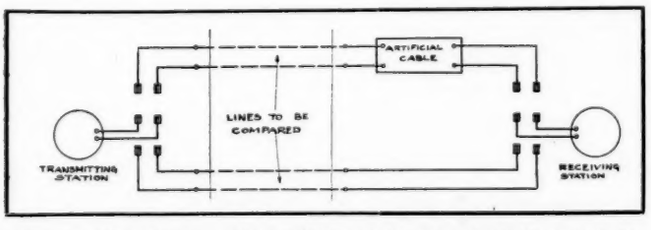


Fig. 3. Direct Comparison of Losses in Two Telephone Lines.

ed from induced current in telephone circuits which parallel high tension lines. The artificial cable provides a means of measuring the effect of such induced current on transmission.

It is often desirable to measure the effect of cross talk from one circuit to another. This is one form of induction and therefore may be included under the general heading of induction.

To measure the amount of induced current or induction, and its effect on transmission, the artificial cable is inserted in series with the line on which the inductive noise has been noticed and a sufficient amount of cable is switched into cir-

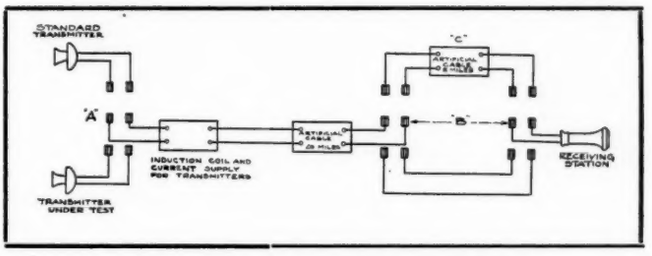


Fig. 4. Circuit for Testing Transmitters.

cuit to cut down the noise until it is barely audible. This is always possible, because the noise on the line is subject to transmission loss the same as are voice currents. The amount of cable which it is necessary to cut in in this way, is a measure of the deleterious effect of induction on telephone transmission.

It has been found that on long distance connections any inductive noise which cannot be cut down to a practically negligible amount by inserting 15 miles of standard artificial cable in series with the line, will interfere seriously with transmission.

(5) To determine the efficiency of transmitters and receivers: The average telephone manager has no ready means of determining the efficiency of transmitters and receivers either when they come from the factory, or after they have been in service for some time. It is difficult to test such instruments in quantities and with accuracy without the aid of artificial cable and a special testing circuit.

Such a test should be made, however, on all instruments received from the factory, as a routine inspection test, as these instruments form the most important link in the chain of apparatus which furnishes telephone service to subscribers. If transmitters and receivers are not in good condition, or if they are lacking in efficiency, the highest priced cable and switchboard plant is of little value. Then, again, transmitters and receivers taken out of the plant after some months or years of service, should be tested to see that they have not deteriorated materially before they are put back into service.

To test transmitters in this way, a simple circuit is arranged similar to that shown in Fig. 4, so that one can switch a standard transmitter and a transmitter which is to be tested, alternately in circuit by means of switch *A*. The standard transmitter should be chosen carefully and used only on tests of this kind and all transmitters should be compared with the one standard. An artificial cable of about 20 miles should be cut in series, and arrangement may be made by means of switches *B* to cut additional cable, *C*, into circuit with whichever transmitter tests the best, so as to make the transmission with each instrument the same. This latter cable then is a measure of the difference in transmitting efficiency of the two transmitters.

For routine tests, the amount by which two transmitters differ may be estimated closely enough without the aid of the additional cable, *C*.

The tests with receivers are made in a similar way to that with transmitters by merely reversing the circuit and connecting a standard transmitter at *B*, and the two receivers which are to be compared at *A*.

Various other tests in addition to those outlined may be made with the aid of artificial cable. In fact, any simple line conditions involving one or two distinct telephone lines may be set up by the aid of artificial cable.

How Time Flies

The Disappearing Promoter—The Dying Non-Producer

By J. C. Kelsey

A man came into my office last week. Five years ago he was a president of a $10,000,000 securities company, and with the securities company he had an engineering and contracting company, together with several promotional deals designed to keep every wheel within the wheel turning merrily for years to come.

They had fine offices and large rich mahogany desks, and very short office hours. I was much impressed by the scenery of the office, and more impressed with the carelessness of the speech of the employes; they never talked in less than millions.

I would go back to my office and ponder on the ways of the world, how some got its goods so easily and how others, the great majority, worked hard and long, and yet always seemed but a few jumps ahead of the receiver.

Here we have a typical condition of the decade from 1896 to 1906. It was the era of the non-producer—the drone; in other words, the promoter.

How we have heard the promoter cussed! How our telephone literature of the past has devoted columns to excoriating the man who led the public with other people's money.

When I received the card of the president of the ten-million-dollar company at this late date, I was much impressed. But when the magnate came in, he was no longer the dapper, imaginative and convincing gentleman.

I don't know what was missing most, possibly the reflection of the highly polished mahogany office furniture. Anyway the promoter of millions was seedy, very seedy, and in his hands were packages.

I soon learned that he was no longer with the great securities corporation; in fact, the great corporation no longer existed. Further, that in spite of the prosperous appearance of the offices, they had never sold a dollar of the preferred stock of the securities company.

Not selling any stock of the securities company, they were unable to finance the deals which were to keep the engineering company busy, and to furnish the basis of a bond selling campaign for the bond sales department.

So, of course, everybody connected with the concern had to scatter.

But the point of the story is this: The ex-president of the $10,000,000 company confessed something; that the promoter's life was a sad one, and that no success is possible without long days of tedious and painstaking work.

Then he asked if I would buy a quarter pound box of home-made candy, made by his wife and peddled by him among his old friends.

The real point of the story is the cause of the elimination of the promoter, the non-producer, the reckless handler of other people's money. That cause is "state-wide regulation."

The promoter has passed on, not only because of the investors' mistrust, but because a state utility commission has declined to reward his talents.

The theory of valuation today takes no promoter into account. It gives the non-producer no value whatsoever.

The only hope is something for good will or going value, and that is limited to 15 per cent.

The rate making privilege of a utility is today limited to its actual replacement value, less depreciation to date.

The courts are exceedingly plain in this matter. It does not matter what bonds and stocks you have, or what the promoters paid for their securities, or what dividends you have paid.

Enterprise has been put on a production basis. The state sees no reward for anything but the physically productive department.

It has struck a hard blow at the highly polished mahogany furnishings of numerous offices.

As the years go by, there will be more peddling of home-made candy, especially in the financial end of the large city.

One is struck at the countless and endless dealers in securities. Every young man with parents of more of less social standing becomes a bond salesman. When discharged on some account, they open bond houses of their own.

It is lovely work—so dainty and so cultured—but it won't be long until 90 per cent. of them will have to go to some productive work.

You can see the effect on the New York houses too.

Their latest game was to consolidate a group of gas plants, electric light plants, or some utility, organize a holding company and pay a dividend on the non-productive factors. But the state utility commissions have given this a black eye.

Each plant will only be allowed to earn on its actual physical value today. It is a case of goodbye to the holding company.

We have a good example in the Rock Island railway. This railroad is one of the best, but it is cursed with holding companies—wheels within wheels—and today the very germ of holding company disease is killing the property.

Rock Island was a proud railway until a bunch of tin plate magnates got it into their heads they could run a railroad.

Most men have two specific notions: First, they can run a successful newspaper; second, they can run a successful railroad.

Today we have no instance where business men, successful in one line of industry, have ever revolutionized another industry. Newspapers and railroads continue to break successful business men, and always will.

There seems to be a fight on between Promoter Perkins and Senator Borah.

It seems that Promoter Perkins thought that he could run a political party as well as the International Harvester, and other promotions, for the public good.

Somehow the public has not taken Mr. Perkins to its bosom. Mr. Perkins still insists he is on the right track; that he is the one man we should allow to run the government.

Senator Borah says of the International Harvester: "A most unconscionable and shameless monopoly," "Cruel and brutal monopoly." And more, "The inhuman way in which it worked and treated its employes." And still, "Piecework and night shifts for women," "The repulsive inhuman and hellish treatment which these women receive at the hands of this combination."

These are strong words, especially since Mr. Perkins and Senator Borah agreed on the way to save the country last November.

Thus you have it, that even a successful promotion has its troubles. The promoter denies that he made $7,000,000 by the promotion of the Harvester trust. How many of you believe him?

He denies that the women were mistreated, and cleverly defends night work at the Auburn twine mill, because the farmers would have suffered great losses from lack of twine.

Really it is hard to catch any philanthropic trust at the cruel game. Every time you accuse them of cruelty, they have a good excuse.

Is it not rather queer that the Harvester trust cannot get enough twine ahead, working 12 months in every year?

In some respects, this Perkins-Borah matter is a political quarrel, but there is something beyond.

We know that promotions of the old-fashioned kind are a thing of the past, and we are beginning to know that the old-fashioned promotions, which have lived into the present, are going to be punished by the diseases they themselves originated.

It is all right to defend an illicit deal because it employs men the year around, but it takes more than one very important right to balance a wrong.

Mr. Perkins insists that the field is open; that a hundred competitors testified that it was, etc.

We, in the telephone field, can realize just how far that field must be open. Any Bell official would testify too that the field was open. I heard a Bell witness at Harrisburg, Pa., a few weeks ago, tell the Pennsylvania Public Service Commission that they did not have to buy from the Bell factory.

But you and I know what a fine chance any Independent telephone manufacturer has in a sale to a Bell company.

The question of the open field in our business is still unsettled.

I can't understand the joy it gives to entire American Telephone to sell a lone switchboard. Their pleasure in the sale of a $125 switchboard exceeds the rejoicing in Heaven when that one lost sheep was found.

They are going right on in the washing machine business, curling iron, and all. They are establishing branch houses everywhere, supported by American Telephone, because no branch has ever paid a nickel on its Independent sales.

Under the guise of telephone philanthropy, they are competing with every industry outside of their main activity. I even expect to see signs on Bell factory branches, "Coal, Wood, Ice." Why not, since telephone exchanges make use of these products?

And the queerest part is yet to come: Applicants for work have come to me, telling they have been laid off by the Bell factory because of a lack of sales in a territory; because the General Electric Co. had bought up the electric light and power plants and their purchases were confined to the General Electric Co.

This left the Bell factory somewhat "in our boots"—left out in the cold world, except, of course, in places where the Bell controlled.

It is a dangerous game to start out tramping every one under foot. Sooner or later, the long lane will turn.

I think we will find that it will be declared illegal for the Bell company to sell washing machines, curling irons, coal, wood and ice. I do not believe their charter provides for it, besides it involves restraint of trade discrimination, unfair advantage, etc.

It is philanthropy I presume, at least we have heard no defense. Possibly the great Bell heart will not rest until every woman has a washing machine in her house.

If they come to the defense, we will be ashamed to ridicule a very Christian desire to eliminate backaches from womankind.

I am not sorry to see Philanthropist Perkins and Senator Borah indulging in a family row. We will see more of it.

Some day we may find out why the Bell interests opened their factory gates to a waiting and anxious telephone world.

I will stake my life that their action was not designed to ruin the Independent telephone manufacturer, but to come to the relief of poor suffering mankind, just as the Harvester women toiled all night to save the grain crop.

Big business seems to have its trouble. The promoter seems to have taken out too large a profit, and left it with a great unproductive load which cannot be taken care of except by raising the price.

In talking over the possible separation of the Bell operating company and the Bell factory, I learn that most Bell men seem to feel that it is kindness for them to hold the Bell factory, as it is.

They argue that the Bell factory once foot loose from the Bell could, under their present contracts, charge the Bell company any price they asked and, with the profits, undersell the Independent manufacturer.

This joke is too obvious. There never was a big concern which could produce as cheaply as a medium-sized one. It is the old story of excessive system, red tape, inspectors, loafers and relatives; all of which makes the unproductive load more than balance any economies.

No Independent manufacturer can hope to sell to Bell operating companies. The average Bell man talks about Bell apparatus in a most weird manner, especially when state commissioners are listening.

He does not believe anyone else can produce apparatus, and when it comes to patents, then the Bell witness does romance. The poor fellow really does not know any better.

Some day state commissions are going to cut down through romance and then will discover some ugly facts.

The old-fashioned promoter has seen his best day; simultaneously, big business has seen its best day. The pendulum has swung backward.

There has been too much stage money used in real life. There has been a sad over-extension of credit, and there has been a needed lesson given to the investor. He needed a protector seriously, and the public gave him one in spite of himself.

One can oppose state control all he wants. It is here to stay; it is a defensive measure, really, to prevent a fool and his money from parting. It may be that some commission members are a little bit fresh or conceited, but that is only a preliminary.

Remember that state commissions have problems. Here is one for you to think of: Every telephone company in your state wants and must have higher rates.

If the commission grants every request, what will the public think? They will think that commission rule is a joke.

So you are led along, delayed at every turn, so that the public will not catch on. I don't care what state you live in, your rates need adjustment and no commission can help itself, unless, of course, politics plays a part.

State public utility commissions have eliminated the promoter. Before many years they will inquire into your unproductive load.

If you are controlled from afar, and are charged with expense not local to you, you will have to cut it off. That is exactly where Universal service will suffer, no locality is bound to carry this extra $10 per station cost.

Strange how quickly the believers in government ownership took up the universal cry. Did it ever occur to you that the Bell Press Bureau made this nice little government nest themselves? No one ever dreamed that one grand interdependent and intercommunicating idea would lead to government ownership possibilities.

Personally I do not believe we will see government ownership in our generation. It will do no good for telephone men to cry against it; it would be in better taste for them to remain quiet.

The curse of business is the inevitable increase in unit cost and it does not matter how large or small the business is.

Big business is little business grown up. Instead of measles, mumps and whooping cough, it has typhoid, pneumonia and nervous prostration.

The whole secret of business is work. If each and every man works, then any business will make progress.

One man pulling back, puts two men's work at naught, and exhaustion follows.

The promoter really has nothing to do with it.

MORAL: Promoters soon will only be seen in museums.

TO ALL INDEPENDENT COMPANIES.

The larger Independent telephone companies for several years have employed attorneys to act as their agents in Washington, to receive notice of orders and processes issued by the Interstate Commerce Commission, but the thousands of smaller companies have not been represented. By opening its Washington office, the National Independent Telephone Association has provided for representation of all companies, membership in the association being the only requisite.

The association charges merely the annual dues, no membership fee being required. The dues are:

For companies having over 500 subscribers, $10 per year.

For companies having less than 500 subscribers, $5 per year.

If any company wants representation before the Interstate Commerce Commission; representation before the Department of Justice; to be kept in touch with all important legislative matters affecting telephone interests; and to aid in upbuilding the great telephone industry—that company should join the National Independent Telephone Association and secure these benefits and opportunities.

Membership in the National association means much. Write the Secretary at 527 Colorado Building, Washington, D. C.

National Independent Telephone Association.

The U. S. Census Report on Telephones.

Preliminary figures of the forthcoming quinquennial report on telephones of the United States have been given out by Director W. J. Harris, of the Bureau of the Census, Department of Commerce. They were prepared under the supervision of W. M. Steuart, chief statistician for manufacturers.

The statistics relate to the years ending December 31, 1902, 1907, and 1912. They include the total wire mileage and the total number of telephones reported for all systems in the United States that were in operation all or any part of those years. They do not include private telephone lines used exclusively for communication between different departments of the same establishment unless connected with lines elsewhere through a private or branch exchange. The number of telephones includes all installed, also those furnishing service through private branch exchanges, local pay, and outlying toll stations.

During the year 1912 the length of wire used on the telephone lines of the United States amounted to 20,248,326 miles. This represents a gain of 15,347,875 miles during the decade, or an increase of 313.2 per cent.; there were 8,729,592 telephones in use, or 6,358,548 more than the number reported for 1902, an increase of 268.2 per cent.

The number of telephones reported by the Bell telephone system increased by 137.8 per cent. during the period from 1902 to 1907, and by 62.4 per cent. from 1907 to 1912. During the same periods, the number of telephones reported by all other companies and systems increased by 183.4 per cent. and 22 per cent., respectively. In 1902 the Bell system controlled 69.1 per cent. of the wire and 55.6 per cent. of the telephones in use. In 1912 this system controlled 74.7 per cent. of the wire and 58.3 per cent. of the telephones. The proportion of the total wire mileage and total number of telephones owned by the Bell telephone system, has increased during the decade, while that owned by the Independent companies has decreased.

The purpose of telephone companies is to afford communication between distant points, and the amount of business is usually expressed by the number of separate messages or talks that pass over the wires. While some companies keep an accurate account of the number of messages, as a rule no record is made from which accurate statistics can be compiled. It is estimated that there were 13,735,658,245 messages or talks sent over the telephone lines of companies which had an income of at least $5,000 during 1912. A message may represent either a few words or a long conversation, and therefore does not indicate the extent to which the equipment is used. It was impossible to obtain even an estimate of the number of conversations over the private branch wires and the party lines which do not require interconnection at the public or central exchanges.

No estimates were required concerning the number of messages for the 1,402,844 telephones on the lines of small companies which had an income of less than $5,000 during 1912. Messages for these smaller systems were included to some extent in the census of 1902; therefore the statistics of messages reported for the three years are not strictly comparable, and they should not be considered as representing the total amount of business transacted by telephone systems of the United States during the year 1912.

The figures in detail are shown in the accompanying table.

	Year.	Miles of wire.	Number of telephones.	Estimated number of messages or talks.[1]
United States.....	1912	20,248,326	8,729,592	13,735,658,245[2]
	1907	12,999,364	6,118,578	10,400,433,958[2]
	1902	4,900,451	2,371,044	5,070,554,553
Bell Telephone System.	1912	15,133,186	5,087,027	9,133,226,836
	1907	8,947,266	3,132,063	6,401,044,799
	1902	3,387,924	1,317,178	3,074,530,060
All other companies and systems	1912	5,115,140	3,642,565	4,602,431,409
	1907	4,052,098	2,986,515	3,999,389,159
	1902	1,512,527	1,053,866	1,996,024,493

[1] The number of messages reported by the Bell telephone system includes only completed calls, while the figures for all other companies may include some original calls not necessarily completed, such as calls that the operator reports as "Line busy" or "Does not answer."

[2] Exclusive of companies with an annual income of less than $5,000.

The Rejuvenation of the Craneville Telephone Exchange

A Serial Story Telling How a Rundown Telephone Plant Was Rebuilt, Enlarged and Changed Successively from a Grounded to a Local Battery Metallic System and Later to Common Battery —Problems Encountered by Every Practical Telephone Man

By Paul Hamilton

"Frank" said Mr. Barrows, as Frank and Germany came into the exchange one bright sunny morning. "It hasn't rained for two or three days and it looks now as though we might have a few days of sunshine. Perhaps we can manage to clear up the balance of our cross talk."

"That's all right, I'd have done it before, if I had known where to find it." Frank replied. "It's there, pretty bad on some of the lines, even on a dry day."

"Yes, I know. I thought you had an idea where we would find it. You remember we tested to the end of the cable which leads out to the pole, and cleared the trouble we found inside the office by putting in new jumpers. The balance of the trouble is in the cable."

"We haven't tested from the pole in?"

"No, we didn't, but I made a test myself"

"Without going up on the pole?" Frank inquired.

"Yes. I was looking for a pair or rather a wire to bring that new line in on yesterday. I couldn't find a clean span, so I had to take the best I could find."

"That was what I wanted to know."

"Yes, I cleaned them all a few weeks ago when I put in No. 276. We couldn't find a clear wire for that line either, could we Germany?"

"Nope, all crossed, everyone."

"So you had made a test after all?"

"No, not of the cable in particular. You see Germany was out at the instrument, and I changed wires in the cable for him a dozen times. We finally concluded there must be something wrong with the line."

"I see. Did you test the line from the cable pole?"

"Well, no. I didn't have any batteries at the pole. I'd just skip up and make a change between showers. How did you test without getting on the pole?" Frank inquired.

"It is very simple. I'll show you," answered Mr. Barrows, making a sketch (Fig. 62) and then continuing:

"You see by connecting a receiver to ground at the rack and testing each span during a busy time, you can pick up the cross talk. Sometimes when you think you have a clear conductor, a subscriber will come in on his line and you will find out you haven't. The trouble appears to be

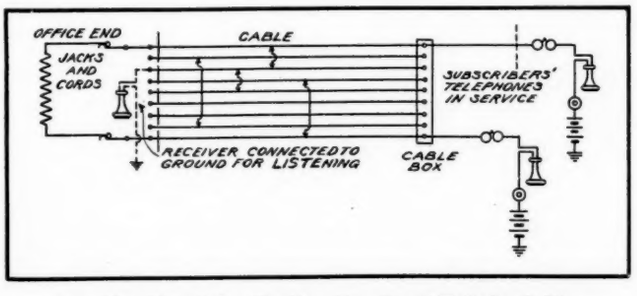


Fig. 62. Circuit for Testing For Cross-Talk in Cable.

pretty evenly distributed; that is, each wire is crossed with other wires, but no one wire is crossed with all the others. That cable has hung there seven years and it is about time it showed some signs of breaking down."

"We always could hear when there was anyone ringing on a line," Frank volunteered.

"That is nothing unusual. You can get the ringing induction through a receiver in a cable where the insulation is perfect, and you would not get the faintest sign of cross talk."

"Why is that?" Germany asked.

"Because the generator produces alternating current, which gives an impulse or bound at each change of polarity. The current required to operate a bell armature is

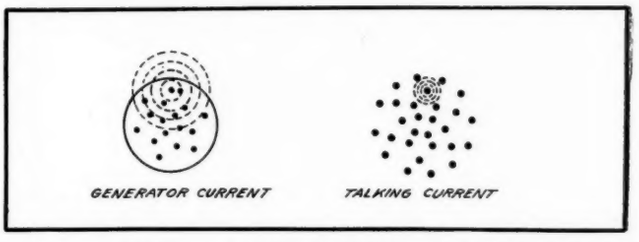


Fig. 63. Comparison of Fields of Talking and Ringing Currents.

much stronger than that used for talking purposes. Then again, the voltage or pressure is possibly ten times as great. Under these conditions, the field it reaches (Fig. 63) is much wider."

"Is the talking battery alternating or direct?" asked the Doctor, who had been listening attentively.

"He comes off a battery which is direct already," answered Germany annoyed at the interruption.

"Germany is right in part only," continued Mr. Barrows. "We consider current from a dry cell as direct, but when it reaches a distant receiver, it has been changed into alternating the transmitter and induction coil acting together as a transformer, or rather a converter. If the Doctor will remind me, we will take that up at one of our evening sessions, when I will go into it more fully. At present, we are discussing cable conditions."

"Can you tell us," the Doctor began, "why, when the current becomes weak, that is when it is forced through resistance as it is in the case of induction or cross talk you have just illustrated, the word form is maintained? Or rather the word, and frequently the tone, does not lose its identity, but dies down in volume and becomes indistinct like an echo?"

Frank and Germany both showed signs of annoyance at the Doctor's finely drawn questions. They viewed the business from a practical standpoint, while the Doctor went more on theory. Mr. Barrows himself searched the Doctor's face to ascertain if the young man was attempting to propound a puzzle or was really in earnest.,

"That is a very interesting point," he replied. "As for myself, it was a long time before it was made clear to me. Note that down, too, Doctor. We will get at it more thoroughly at one of our meetings. What we want to do now, is to decide what to do with our cable to clear it up."

"I suppose a new cable is out of the question?" said Frank, questioningly.

"No, Frank, it is not, but just at this time I am considering taking the lines down from in front of these two blocks and running cables from the rear, each way, through the alley. Until I decide about that, we must make this old cable answer.

"Get that can of waterproof paint and a dozen rolls

of each kind of tape, and take them up to the roof with you," he continued. "There are only about 12 feet of the cable you cannot reach from the roof. Begin by stripping the outside covering of the cable."

"That won't be much of a job. It's hanging on ribbons now," said Frank.

"Yes, but it will have to be a careful job nevertheless. You see, each wire is insulated separately with a rubber compound. That insulation is very—well, what we call lifeless; it will break and crumble very easily. After the outside wrapping is removed, separate the wires as much as you can safely, and let the sun dry out the moisture."

"That won't take long with it as hot as it is today. You can fry eggs on that tin roof right now," said Frank.

"You can fry your's there, but I go home for my dinner," chimed in Germany.

"When it is thoroughly dry, give it a liberal treatment with that rubber compound. Then the conductors can be drawn back together with muslin. The muslin next gets a coat of the compound. Then give it a wrapping of rubber tape making a half-lap in doing it, so that you really have two layers of the tape. Next put on another coat of paint. A wrapping of friction tape, a coat of paint and a wrapping of rubber tape, with two coats of paint applied to it, ought to hold until we get a new cable.

"We ought to finish that before night," said Frank. "Germany, you and Doc tackle the roof. I'll do the aerial stunt over the sidewalk.

"Better get a tarpaulin to stretch under you so the paint won't drip on people going along the sidewalk," cautioned Mr. Barrows.

"Mr. Barrows," said Miss Dietz, as Mr. Barrows returned after dinner, "Mrs. Carlson called up while you were out. She does plain sewing and goes out nursing sometimes. Frank put a telephone in for her day before yesterday. It is No. 94. She wants me to call all the numbers in the book and tell the subscribers her telephone number. What do you think of that?"

"That's a new idea," responded Mr. Barrows.

"She said if I couldn't do that, you might put a notice in the paper for her, or send out postal cards," Nellie continued.

"Explain to her that we cannot comply with any of her requests, but anyone calling her by name will be given her number," directed Mr. Barrows.

"I thought she was expecting a whole lot," replied the operator.

An hour later Mr. Barrows looked up from his work, as the door opened. Mr. Rankins had, on several occasions, escorted callers through his office and tendered an introduction to the "telephone man." It was only such persons whose standing in the community merited special attention, who received this consideration from the former magnate. Mr. Barrows had quickly appreciated the fact that Mr. Rankin's judgment of men worthy of attention, was to be relied upon.

"This is Mr. Thompson—Brand Thompson—Mr. Barrows. He lives over toward the north line. When you want to see a bang-up, farm layout with good live stock running loose in every pasture, drop around his way."

"I am glad to meet you, Mr. Thompson but will have to confess I'm not much of a judge of live stock. I owned a horse once, but didn't get much more than the worth of his hide for him."

"Thompson, here, has heard some talk about the proposition you made Runkel and the crowd the other day. I found him down at the barn talking with McDougal. I got him to one side and told him if he wanted the straight of it, he'd better come right to you. Why that crowd said you tried to rob them of what they had and then make them pay more for carrying it away." Mr. Rankin explained. "You'll find Thompson, here, can see through a broken window," and the liveryman retired.

"Sit down Mr. Thompson," invited Mr. Barrows. "Unfortunately I have never had an opportunity to ride out your way."

"Well, I will say we've got some nice places along our road. I live about five miles out, just this side of the big timber. What Rankin brought me here about was this telephone business. We have been holding meetings up our way trying to get up a telephone company. Somehow we haven't made a go of it. Then my brother-in-law was over the other day and told me something about the proposition you made the Mutual fellows. We're going to hold another meeting to morrow night and I thought I'd find out about your proposition today, as long as I was here."

"I'm glad you came in. I want to build a line out your way. My proposition is covered in these contracts. You can take some with you. There is one point, however: When I am assured of five contracts, I will start building, assuming, of course, that I can secure right-of-way along the highway."

"As I understand it, you propose to furnish everything and, of course, that means ownership as well?"

"Yes. I see no reason why there should be any different basis for dealing with you men than with Craneville people, except from a practical point of view; a party line will prove quite satisfactory for the present, as well as being an economical plan."

"Well, I'll bring it up before the meeting. If we do anything, I'll let you know. I, for one, want connections with Craneville. Five miles is a long ways to drive every time you want anything. Any time you want to take a ride out our way, let me know. Say! While I think of it, can't you come out to the meeting tomorrow night? It's to be at the schoolhouse at Judd's corners; that's about halfway to my place."

"I'll think it over, Mr. Thompson. Perhaps I'll run out. I'd like to meet as many of you as I can."

"All right, then, I'll look for you 'round eight or half-past," the farmer concluded.

After Mr. Thompson had gone, Mr. Rankin entered.

"You'll excuse me, but I couldn't help hearing something of what Thompson said. I want to put in a word. It's about going to that meeting. I'll drive you out there and it's my opinion, it would be a good thing for you to go, if you want to go into the farmers' line game. The Mutual crowd is pretty sore. They'll go as far as to have some one there to put a spoke in your wheel, if you don't go and protect yourself."

"All right, I guess I'll accept the invitation. I appreciate your interest."

"There isn't anything that will bring the Runkel crowd around quicker than your coming to terms with Thompson's crowd. There's all kinds of rivalry between them."

(To be continued.)

To Eliminate Letters in Designing Party Lines.

Arrangements have been started by the New York Telephone Co. to do away with letters when designating party lines. Experts of the company have worked out a system which is to be put in operation soon and under which the party line subscriber will not be distinguished any longer from the patron having a private wire. It was stated that the company has found that the letters gave cause for many complaints and, furthermore, that the disappearance of this distinguishing feature of party lines will induce a good many people to take telephone service who have heretofore had none.

Annual Reports and Meetings of Telephone Companies

Statements Given Out by Telephone Companies in Various Parts of the Country Relative to Their Operations During the Past Year—Summaries of Earnings, and Expenses.—Growth in Number of Subscribers and Equipment—Provisions for Future Development

Earnings of Southern New England Company.

The annual report of the Southern New England Telephone Co. for the year ending December 31, 1913, shows gross earnings of $3,594,560; expenses, $2,829,207, and net earnings of $765,352. Interest and dividends during the year amounted to $706,740, leaving undivided profits of $58,612. The dividend item was $615,496. The company has a capital stock of $8,792,800, and installments paid on the recent increase brings the total to $10,000,000. The bonded debt is $1,000,000. The corporate surplus account is now $377,029, after allowance is made of $25,000 for casualty reserve.

The condensed balance sheet as of December 31, 1913, is as follows:

ASSETS.

Plant	$13,593,064
Supplies	268,608
Bills and accounts receivable	363,399
Prepaid expenses	16,972
Stocks and bonds	54,125
Cash and deposits	30,505
Total	$14,326,673

LIABILITIES.

Capital stock	$ 8,792,800
Capital stock installments	1,207,200
Bonded debt	1,000,000
Bills and accounts payable	193,847
Dividends payable	153,874
Replacement reserves	2,415,176
Other reserves	34,855
Employes' benefit fund	150,000
Premiums on capital stock	1,892
Surplus	377,029
Total	$14,326,673

The statement of earnings and expenses for the year 1913 is as follows:

EARNINGS.

Operating revenues	$3,585,889	
Non-operating revenues	8,670	
		$3,594,559

EXPENSES.

Operation expenses	$1,253,356	
Current maintenance and depreciation	1,437,195	
Taxes	137,977	
Non-operating expenses	679	
		$2,829,207
Net earnings		$ 765,352
Interest on bonded debt	$ 50,000	
Other interest	41,244	
Dividends	615,496	
		$ 706,740
Undivided profits		$ 58,612

CORPORATE SURPLUS ACCOUNT.

Balance January 1, 1913	$ 343,417	
Undivided profits for year 1913	58,612	
		$ 402,029
Appropriation for casualty reserve		25,000
Balance December 31, 1913		$ 377,029

The following remarks are included in President Alling's report:

The year closed with a total of 110,219 telephone stations of all kinds in the Connecticut system, an increase of 7,580, or 7.39 per cent. for the year.

The net increase in stations directly operated by the company was 7,411, which resulted from 18,836 installations and 11,425 removals. From these figures it is evident that the number of removals was 61 per cent. of the total installations, or that it was necessary for the company to install 2½ telephones in order to net one additional station. The cost of these removals, together with that of transferring stations from one location to another, formed an item of $107,000 in our current maintenance account. It is a large and growing burden to the business that the increasing development of telephone stations, which so greatly enhances the value of the service to the user, must be attended with a decreased average permanency of installation.

From periodic counts, the local traffic, or calls between subscribers within the same exchanges, is estimated at an average of 585,256 calls per day during the year, as against 519,355 per day during 1912, an increase of 12.7 per cent. A comparison of these figures with the station figures for the same years further indicates the growing value and utility of the service. Had the same rate of usage continued throughout the two years, the number of calls per day during 1913 would have been only about 38,000 more than during 1912; the difference between that figure and the actual increase represents the extent to which subscribers have added to their former usage of the same service. It is worthy of notice that this increase also represents additional service rendered by the company with practically no compensation, since the very large majority of our stations are connected on the so-called flat rate basis.

Including two multi-office exchanges, the company operates 68 central offices to which the telephone stations are connected by 49,654 local circuits. Connecting lines are also extended to all Independently owned and operated systems in the state, so that every telephone user has access not only to every other subscriber in Connecticut, but to all facilities of the entire Bell system.

The large additions to the cable plants continued throughout 1913, with the result that the wire mileage was increased by 46,722 miles, bringing the total to 302,081 wire miles at the close of the year.

Real estate additions during 1913 included among others the completion of central office building at Putnam and Willimantic. New common battery switchboards were installed and placed in service in the Putnam and Willimantic buildings.

The report for the year 1912 called particular attention to the adoption by the company of the Employes' Benefit plan and the establishment of a benefit fund. From that fund during 1913 the first year of its existence, benefits were paid to employes as follows:

For pensions, $1,041; for accident disability, $7,655; for sickness disability, $12,490; for ordinary life insurance, $2,285; for accident life insurance, $7,621; for surgical expenses, etc., $1,102; total $32,194.

Canadian Company Earns 8 Per Cent.

The annual report of the Temiskaming Telephone Co., Ltd., of New Liskeard, Ont., Canada, shows gross income for 1913 of $36,577, as compared with $32,725 for 1912, an

increase of $3,852. The net income for 1913 was $12,530, as compared with $12,506 the year previous. During the past year the company established exchanges at Charlton and Swastika and now has nine exchanges. It had 24 toll stations and 16 pay stations on December 31, 1913. On the same date the total number of subscribers' stations operated by the company was 1,167, as compared with 952 at the close of 1912. The number of subscribers' stations operated by connecting companies within the same territory was 230. Considerable rebuilding of toll lines, rural lines and lines to the different mines, was undertaken during the year. The company has continued to pay a dividend throughout the year of 8 per cent. per annum.

The financial statements of the company, cents omitted, follow:

REVENUE.

Rentals	$24,319
Tolls	11,330
Commission on other line business	866
Sundry rents	62
	$36,577

EXPENDITURES.

Maintenance	$11,194	General Expenses	$ 502
Operators' salaries	4,832	Insurance	226
Office salaries	2,185	Directors' fees	210
Interest and discount	995	Legal fees	276
Printing, stationery, advertising	676	Postage	285
Discount on tolls	908	Heating	297
Rent Haileyb'y office	300	Lighting	166
Taxes	471	Rental tax	460
Total	$23,983		
Carried to loss and gain account	12,594		
	$36,577		

LOSS AND GAIN ACCOUNT.

Carried from revenue account		$12,594
Balance forward from 1912		8,794
		$21,388
Dividends	$4,010	
Depreciation	5,852	
Bad debts	79	
		9,941
Balance at credit of Loss and Gain account		$11,447

The balance sheet is as follows:

ASSETS.

Plant and equipment	$98,501	
Building at Liskeard	3,442	
Building at Cobalt	2,200	
Accounts receivable, tolls	2,413	
Accounts receivable, rentals	2,707	
Accounts receivable, sundries	564	
Real estate, Cobalt	1,500	
Real estate, Liskeard	600	
Office fixtures	742	
Horses, wagons, etc	1,076	
Tools	497	
Unearned insurance premium	199	
Stock on hand	3,817	
Cash on hand	348	
		$118,608

LIABILITIES.

Bills payable	$ 4,000	
Bonds	15,000	
Accounts payable	4,620	
Wages and salaries due	421	
Accrued interest	291	
Dividends uncalled for	100	
Unearned rentals	7,605	
Subscribed stock	50,124	
Emergency reserve	25,000	
		107,161
Balance at credit of Loss and Gain account		11,447
		$118,608

The following were elected as directors for the ensuing year: Messrs. T. McCamus, George Taylor, A. N. Morgan, A. Ferland, T. Magladery, E. C. Kingswell and R. S. Taylor. F. L. Hutchinson was, by vote of the meeting, reappointed auditor. At the directors' meeting, held after the shareholders' meeting, the following officers were elected: T. McCamus, president; Geo. Taylor, vice-president; A. N. Morgan, managing director, and P. R. Craven, secretary-treasurer.

Cincinnati & Suburban Bell Telephone Co.'s Report.

At a recent meeting of the stockholders of the Cincinnati & Suburban Bell Telephone Co., President B. L. Kilgour said that there were 7,636 new telephones placed in service in Cincinnati in 1913, making a total number of telephones in operation in the city on December 31, 71,489. The increase in business, especially in the down town district, filled the main exchange to its capacity. A new exchange building is now in course of construction.

The earnings of the company from exchange revenue for 1913 amounted to $2,402,807 and from toll revenue $139,348. The net profits for the year were $880,745, of which $749,916 was disbursed in dividends.

The underground system was extended 12 miles during the year, making a total of 187 miles.

Mr. Kilgour reported that since the company had adopted last June its employes' pension, disability benefits and insurance plan, payments of $8,587 have been made to employes. Progress on the erection of the building at the Mt. Healthy farm, which has been provided as a place of recuperation for operators, was reported to be satisfactory.

The board of directors was reduced from eight members to seven, no successor being elected to fill the vacancy due the recent resignation of John Kilgour. The other directors were re-elected.

Public Responds to an Advertising Appeal.

It is probably a common experience in many exchanges that when an alarm of fire is rung, the operators of the local telephone exchange are immediately required to handle a sudden peak on account of the large number of inquiries made as to the location of the fire. On such an occasion the New York Telephone Co. received at Ithaca, N. Y., 1,732 in one hour, in addition to the regular average for that hour. In an attempt to curb this tendency on the part of the public, the telephone company advertised, frankly informing the general public that to make so many inquiries directly after an alarm of fire was in a large measure endangering important interests. The public was asked to confine the calls to necessary business at such times, for the general walfare.

That the people are quick to respond to a courteous and reasonable request called to their attention in this way was demonstrated at the next fire alarm, when there were only about 150 extra calls after the alarm had sounded. The company's advertising had reduced the number of extra calls nine-tenths.

Practical Subjects—Letters and Discussions

Letters from a Retired Lineman to His Nephew.

Podunk Valley Farm.

Dear Ben: So it is sand and caving holes? Someone should have known that before you got on the ground with a big gang of men. Digging holes in quicksand, or caving earth, is one of the meanest jobs there is in line building, because you have to have a little more skill than is usually displayed by the ordinary run of groundmen nowadays.

As I may have said before, a year or two digging holes and serving linemen was, in former years, an apprenticeship to a lineman's job. We used to recruit our gangs from the farm mostly. We got hold of pretty good material in that way. But now, the farmer boy is not so anxious to leave the farm.

A good many of your ground men nowadays are fellows who don't care to become tramps, so they work a few months now and then. When you get hold of a "live one," you strap a pair of hooks on him and call him a lineman. With some of the kids you use, we would have sent a man up the poles with him with an extra safety belt to insure them against hanging themselves or falling.

We never had a very long stretch of sand in one place, not over a half mile or so. We generally could get hold of enough old barrels. We would scoop out a bowl about three feet deep like I have shown in the sketch, and then dig inside the barrel the balance of the way. We would then set the pole in the barrel. There isn't much advantage to tamping dry sand, but a little water helps, if you can get it.

I believe they have steel caisons for lining caving holes. After the pole is in place, the caison is pulled up with blocks, opened from around the pole and carried to the next hole. That is probably what they will send you, if you wait long enough.

Ten miles of such digging is a long ways. I think I'd tackle it this way, if I were in your place: As you are in the edge of the desert you have plenty of room. If you can get a couple of steel dump scrapers, used for grading work, and two good teams, you can scoop out a bowl four feet deep in a short time. It will be an advantage to have a 12 or 15-foot chain between the team and scraper; then you won't have to drive the team through the hole.

After you have gone down four feet, you will find that you can dig another foot and a half very easily. After the pole is in position, it is no trick at all to fill with the scrapers. Your job is easier than digging through swamp land.

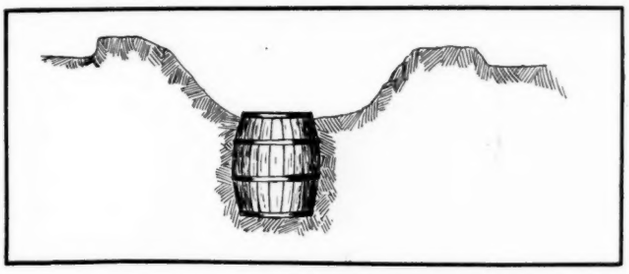
If your gang is up against it for work, and you don't want to lay any of them off, you can send them ahead to put on the cross arms and insulators. Twenty-fives are not heavy, even with two arms. Of course you don't want them to get too far from camp.

No, I wouldn't undertake to run out the two wires on the sand, each side of the line. Dragging it through the dry sand is going to spoil the annealed surface. You'd better run your wire out with the "running board" in the regular way.

The whole case is due to a lack of foresight on somebody's part; it may be considered up to you as you are the general foreman with supervision of the job. I wouldn't worry, however. I think I have something which will appeal to you.

You are tired of nomadic married life, for one thing, but you are not liable to get a residence job very soon. I don't blame the "Missus" for not wanting to sit in a boarding house month after month.

Well, Doc Stuver has come across with a proposition. He is going to London next month and says that as long as he is going that far, he will go on around the world. He will be gone about two years. I guess Prof. Stolski has laid out quite a trip for the old codger. He has an offer of $20,000 for his chart and a big royalty for his unpublished experiments.



Using a Barrel for Setting Poles.

"Dick," he said, "I guess I'm too old to bother with that land. I haven't anyone to leave it to, and haven't the ambition to sell it. Skinner is too old to take hold of it and do anything with it. Fifty dollars an acre will let me out whole on it with a little profit and all the fun I've had besides. That cypress timber is worth that. How would you like to take hold of it? You can sell the timber outright, or put in a mill and make it into lumber; or sell the land, timber and all. You can have all you get over $50 an acre and taxes."

I guess we'd better tackle it, Ben. I think there is a clean fifty thousand in it for us during the next five years, and all the fun we'll have in the bargain. It's a chance for you to get settled down. There are plenty of worse places than Podunk.

I wish you could get down for the farewell blowout we are going to give Doc. Hackney is helping me engineer it. It looks now as though we would have to turn money away. We've got about eight hundred already to buy him some little knick-knack. Hackney has been around some and maybe he can ferret out something for two old folks going on a world tour. As for Julia and I, well it's entirely out of our latitude. People hereabouts think a mighty lot of Doc, after all. Let me hear from you.

Uncle Dick.

P. S.—Doc got wind of the doings. Hackney just came to tell me. The ungrateful old cuss says to raise all we can and he'll put as much more with it and build an insane asylum here in Podunk; that it's a thing we've needed a good many years. What do you think of that?

Dick.

Natural Monopoly.

We have been told repeatedly that the telephone is a natural monopoly. It is to be noted that this thought is promoted, fostered, and projected on the public by the so-called Bell monopoly. Now, let us analyze the facts. In the first place, how was it possible for this patriotic corporation to get such a hold on the people of the United States, and a few other nations? The answer is simple. The right to tax all the people, *all* the time, for *all* they can pay, was given to these friends of the people by a favorable government, and that free gift of the people constitutes the only real strength of the monopoly.

There is no reason why this gift should be taken and held

as a defense for oppression of the people of one district to overcome the so-called unnatural competition of another district. In the second place, let us see how this so-called natural monopoly compares with other business enterprises especially the common carriers of the country. Take the railroad for instance. Why should not one railroad system constitute itself a natural monopoly and refuse to accept freight or passengers from another line because they did not start out on the latter line. Perhaps it would if it did not have to do otherwise. If we do not tolerate dictators in the railroad field, why should we in any other branch of industry, especially one so analogous as the telephone or telegraph which is only the transportation of speech instead of people or goods. We might go on and include the express companies, the food products companies, the oil companies, the steel companies, and any manufacturing company. Why not all natural monopolies?

One reason why all things should be monopolistic is because production on large scales is more economical than production on small scales, if all men could be relied on to be satisfied with fair compensations for service rendered and high finance be eliminated from business. In other words if all men would keep the spirit of the law instead of the letter of the law, monopoly would be a blessing; but nothing has ever worked out that way, and until the millennium, nothing will. Therefore, the best protection we can ever hope for, is that protection which compels the other fellow to walk straight, and that is fair and equal competition.

Railroad rates are fixed by law. All railroads have to accept freight or passengers or other commodities from competing lines, and the rates measured by the service rendered. Telephone competition ought to be on the same basis.

Since all the telephone companies owe their rights to exist to the people who grant these rights, any citizen ought to be able to start business in this field, and compel by process of law an interchange of traffic on a basis fair to all parties concerned.

In other words, if the people can grant a franchise or charter to permit two or more companies to operate in a city or community, they can also prevent the necessity of the people bearing the expense incident to such competition, and can compel each company to connect to the other for local or long distance work. Then no one would have to have two telephones on his desk, no one would have to pay two telephone bills to enjoy the benefit of competition any more than he would have to buy two full sets of supplies from competing grocery stores. Anybody could own his own telephone or telephone system, and by paying the just proportion of the expense, enjoy the advantages of the system or systems operating anywhere in the United States or other points accessable to such equipment.

To make it a little clearer, take a concrete example. "A," "B" and "C" have telephones in town "X," and "D," "E" and "F" have telephones in town "Y." "A" has "M" system, "B" has "N" system, "C" has his own system, and "D," "E" and "F" likewise. Rates could easily be fixed so that any two of these telephones could be connected, and traffic obtained by the companies according to the service rendered or which they would be capable of rendering. Then we would have competition on a fair basis, and every man could take advantage of the economies made possible by new inventions and improvements. This is a monopoly created by the voter, maintained by the voter, and several times paid for by the voter.

The Bell people have always maintained that one of the reasons they desire, and one reason why it is imperative they should enjoy, a monopoly of the telephone business is because of superior equipment. No one denies that the Bell equipment is good, but there are other good makes, and the Independent manufacturers are usually several years ahead of the Bell in putting out improvements, and adopting new designs.

It has been said, how justly can only be conjectured, that the Bell company has for purely financial reasons bought up as many of the telephone patents as possible, and has used them to suppress rather than promote improvements in the art. The argument is advanced by the Bell interests, that this is absurd, because they always want the best and always desire to give the public the benefit of the best in order to further their own interests, and promote their own business. Let us see how this works out. They claim 7,000,000 telephones in service. An improvement comes in requiring for the best interest of all, the changing of the transmitters. Do they change the transmitters? For four years they deny the advantages. Then for four years more they procrastinate, and it takes another four years to really get a good start at making the change. The same logic, and the same process is absolutely true in the receiver, and so on through all the different phases of the subject, to the end that the public can never, if it wants to, enjoy the best. Now, they must wait, as the monopoly has the say of what shall, and what shall not be done in the way of improvement in transmission from one center of population to another.

Some competent impartial body of engineers could easily be found, who could settle all these controversies, and reduce the thing to a system. Every advantage and improvement would then receive a just and equitable chance to grow and thrive, and the telephone business and art could fall into its natural stride, and go ahead with the other improvements.

The last forced move of the trust, let us hope, is made in good faith, and if it is, the people ought to soon come into their own, and carry the issue to its logical conclusion, allowing indiscriminate connections, governmently controlled, and rates fixed on a fair basis, all franchise value and water forced out of the question, for, why should we pay interest on a value fixed by a corporation on a commodity freely given to them by us. It is all wrong to ask it, and criminal to grant it.

Chicago. John H. Finley.

Crossed Wires Cause Trouble at Cable Terminal.

At Beattie, Kans., on the night of December 4, 1913, a 2,300-volt, three-phase circuit became crossed with one of our telephone wires, one block from the terminal pole. It occurred about 12:30 p. m., so the night operator called me. I went to the office and pulled the fuse on the main frame to prevent damage to the board. An hour later I was called again. On the first trip I had pulled the fuse on drop No. 51, and on the second trip I pulled the fuse on drop No. 13, but did not go to the terminal can.

The high tension current had jumped from cable pair No. 51 to pair No. 13 and then it threw every drop on the board. The fuse on the main frame was ½-ampere and the power current never blew a fuse. The fuses at the terminal can were two amperes and none of them were blown. But the arresters were melted together and the cable, from the pothead to the top of the can, was baked to a crisp.

The terminal can had a galvanized iron frame and the high tension current jumped from the pairs in the cable, to the iron frame to get an escape to the ground. The terminal which I used to replace it, has a maple frame and would have stopped the escape of the high tension current from the cable and let it pass through the arresters to the ground.

Beattie, Kans. Wm. Ellis.

South Bend Wants Interchange of Service.

Resolutions asking the Public Service Commission of Indiana to order a connection and service between the two telephone systems of South Bend, Ind., have been presented to the common council.

Telephone Growth in Australian States and Commonwealth

Third Annual Report of Postmaster General Shows Rapid Growth in the Extension of Telephone Facilities—Growth in Staff Impeded by Slow Moving Governmental Machinery—Telephone Branch Operated at a Total Deficit of $1,077,738

The third annual report of the Postmaster General of Australia for 1912, with financial particulars and general information regarding the more important current matters to June 30, 1913, contains some interesting statistics regarding telephone development.

The report shows that the number of telephone instruments connected with the Commonwealth on December 31, 1912, was 117,479, as compared with 102,654 on December 31, 1911, an increase of about 14.5 per cent. The number of exchanges increased in the same period from 927 to 1,032. If the growth of the telephone system continues to develop at the same rate as during the past three years, namely about 15 per cent. annually, the system will be more than doubled in size in the next five years. The mileage of telephone toll lines increased from 39,087 on December 31, 1911 to 45,448 on December 31, 1912.

	1903.	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.
1. Number of exchanges	131	140	149	175	225	280	328	678	927	1,032
2. Number of lines connected	30,327	No rec'd	No rec'd	39,364	47,421	55,454	63,264	74,190	85,458	95,965
3. Number of instruments connected	No rec'd	42,953	47,004	51,195	58,090	66,637	75,611	88,874	102,654	117,479
4. Estimated population	3,916,592	3,974,150	4,032,977	4,091,485	4,161,722	4,232,278	4,323,960	4,425,083	4,563,538	4,731,500
5. Percentage of instruments (to population)	No rec'd	1.08	1.17	1.25	1.40	1.57	1.75	2.01	2.25	2.482

	1906.	1907.	1908.	1909.	1910.	1911.	1912.
Single wire circuit	3,368¼	4,729¼	5,203⅝	5,761½	6,420¾	12,256	12,717
Metallic circuit	1,589½	2,855¾	3,333¼	3,941¾	5,942½	8,101	13,551
Superimposed circuit	10,878	13,528¼	15,290¼	16,071¼	16,506¾	18,730	19,180
Total	15,835¾	21,113¼	23,827⅜	25,774½	28,870	39,087	45,448

Telephone Statistics for Australia from 1903 to 1912 and Total Mileage of Toll Lines.

In contributing to the general report, the secretary of the postmaster general's department says:

"The telephone service affects a limited number of the population, and, more than any other branch of the department's business, may be said to partake of the nature of a commercial enterprise, so that its revenue should be sufficient to cover working expenses, including provision for depreciation, while returning a fair percentage on the capital invested. The working of this branch for the year, disclosing as it does a deficiency of £221,756 ($1,077,734), equal to about 25 per cent. of the revenue, indicates that the rates, which are much lower than in other parts of the world where anything like similar conditions prevail are insufficient to make service self-supporting."

The secretary then submits an analysis of results in the various states showing a loss in every state except in South Australia. The figures given are, in United States currency, approximately as follows:

	Loss	Profit
New South Wales	$ 605,309	
Victoria	270,432	
Queensland	92,270	
South Australia (including Northern Territory)		$9,504
Western Australia	65,972	
Tasmania	53,259	
Total	$1,087,242	$9,504
Total net loss	$1,077,738	

Inquiry is being made, continues the report, regarding the large extent of the loss in New South Wales as compared with other states. The main portion of it appears to occur in the Sydney system, and this, it is declared, may be due in part, if not altogether, to the peculiar configuration of that city; to the large number of exchanges necessary and to the operation of a factor that beyond a certain limit the larger the exchange the more costly the business is to handle per unit, thus becoming accentuated the larger the number of exchanges there are in the system.

In commenting upon the general deficit of the postmaster general's department, the secretary says:

"Consideration must be given to the fact that the department is not always free to act according to its own particular requirements, and circumstances outside its control place limits to its scope for the application of business principles in the conduct of its activities. For example, it took over from the states a telegraph and telephone service which, in some cases, had been starved for years, but it was not allowed to act upon the recommendation of the committee of experts which it had appointed in 1901 to investigate the condition of its telephone systems and report what was required to place them in proper order. It was compelled to live from hand to mouth for many years, patching up and extending the use of out-of-date material for lack of better, and erecting miles of aerial lines that ought to have been, and it was known must eventually be, placed underground. All this has added materially to our expenditure and to the interest charge which now swells our deficit to such proportions."

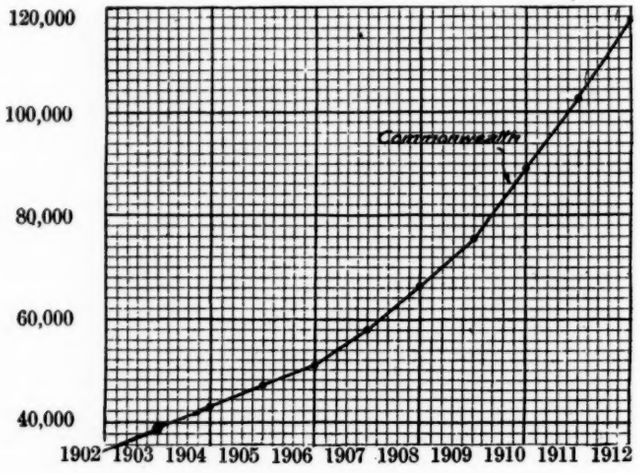
In speaking of the general deficit of the department, due to penny postage and the reductions, aggregating $486,000, made in the rates on telegrams, money orders and cablegrams, the secretary adds that the cost of operation has increased considerably of late years due to increases in salaries, wages, allowances, etc. A large number of facilities have been given the public involving either loss of revenue or increased expenditure. "Taking all these matters into account," says the secretary, "and remembering the admittedly low rates which we charge for both telegrams and telephones, I think that the department can fairly claim that the result as shown is satisfactory."

On December 31, 1912, there were, throughout the Commonwealth, 96,064 telephone lines connected to the 1,032 exchanges, as against 85,458 lines connected to the 927 exchanges in 1911, and 27,713 lines connected to 122 exchanges in 1902. In 1909 the number of lines increased 10,926 and the exchanges 350; in 1910 the number of lines 11,268 and the exchanges 249; and in 1911 the number of lines 10,507 and the exchanges 105.

At the end of 1911 there were 781.38 duct miles of conduit and a year later 1,072.41 miles. There were 170,236 miles of cable conductors at the end of 1911 and 235,937 miles at the end of 1912. In the same periods there were respectively 88,861 miles, and 136,074 miles of open conductors.

The work of placing telephone lines underground and providing metallic circuits was pushed during the year. The number connected in the metropolitan areas on December 31, 1912, was 42,076 as against 29,592 the year previous.

In 1912 there were 12,717 miles of single wire circuits. 13,551 miles of metallic circuits and 19,180 miles of superimposed circuits, or a total of 45,448 trunk lines, the corresponding figures for the previous year being 12,256 single wire, 8,101



Increase in Telephones in Australia, 1902-1912.

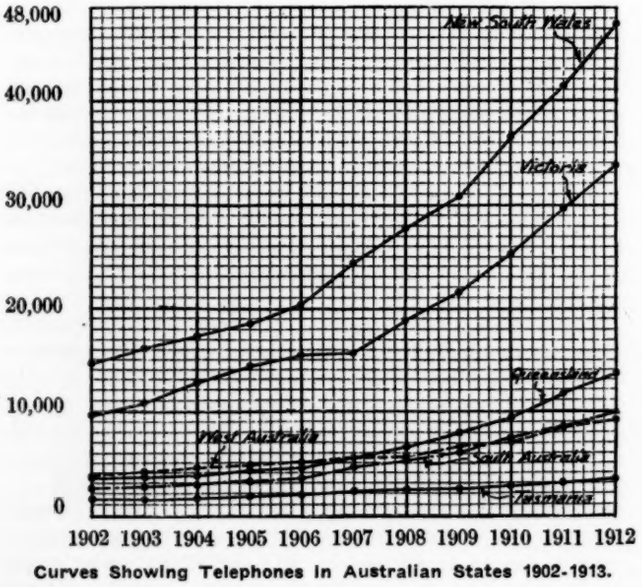
metallic, and 18,730 superimposed circuits, a total of 39,087 trunk lines.

The number of public telephones at the end of 1912 was 2,664 as against 2,526 in 1911.

The number of telephone lines erected in country districts during the year 1912 was 227, as against 199 in 1911; the figures include public telephone toll lines and lines over which telegraph business is transacted by telephone. The increase is declared to be due in a measure to the more liberal terms upon which the department is prepared to erect such lines under guarantee.

The cost of poles is reduced by an act of Parliament providing that where a line crosses a road, wagon track, or water, the poles may be 18 ft. high, instead of 20 as before stipulated, and where the line runs along a road the poles must be at least 12 ft. high.

Approval has been given to an arrangement by which local



Curves Showing Telephones in Australian States 1902-1913.

residents may erect country lines to departmental specifications at the department's expense where they are prepared to do the work at a rate which will bring the lines within the guarantee regulations, or enable them to be erected without guarantee. Every effort is made to reduce the cost of country district lines as far as possible, having regard to efficiency and the prospective development of the district to be served by the proposed lines.

Following the secretary's report is an extended report of the chief electrical engineer embracing that official's reasons for favoring the automatic telephone switching mechanisms. This report was made after an extended investigation in America and Europe and is for the year ending June 30, 1913.

The accompanying curves show the growth in the number of telephone instruments in each Australian state and in the Commonwealth from 1902 to 1912. It will be observed that the rate of increase was well maintained in 1912, it being at the rate of 14.44 per cent. on the number connected during 1911. The average increase since the introduction of present telephone rates (toll system) has been approximately 15 per cent. annually. This is the second complete year since the introduction of these rates, and it is seen that they have no prejudicial effect on the number of subscribers.

In preparing for future development it is the practice of the department to make provision on the following basis: In the case of conduits a careful estimate is made of the probable requirements of the district during 12 or 15 years, and the conduits are provided to cover this period. Cables are provided to cover the estimated growth for five years and the same is true of switchboards.

From comment by the chief electrical engineer under the

State	Metropolitan Exchanges. Subscribers' Lines Connected.	Metropolitan Exchanges. Av. Outward Calls Daily Per Line.	Suburban Exchanges. Subscribers' Lines Connected.	Suburban Exchanges. Av. Outward Calls Daily Per Line.	Country Exchanges. Subscribers' Lines Connected.	Country Exchanges. Av. Outward Calls Daily Per Line.
New South Wales	7,554	7.3	17,608	3.3	14,556	2.38
Victoria	8,308	9.07	10,379	5.27	7,875	2.04
Queensland	3,652	8.1	1,060	4.6	6,594	3.8
South Australia	4,389	8.7	1,093	5.6	1,384	1.12
Western Australia	2,656	6.91	1,537	5.53	2,836	2.81
Tasmania	1,284	5.5	94	2.58	1,391	2.94

Telephone Statistics by States on December 31, 1912.

head "staff and organization," it appears that difficulties which were mentioned in the report for the previous year resulting from inadequacy of staff have been in no way lessened. The proper progress of the work has been impeded because the growth of the service is taking place at a more rapid rate than the increase of staff. The question of the organization of the staff connected with the engineering works in each state has received continuous attention, not only by the officers of the postmaster general's department, but by them in consultation with the officers of the public service commissioner. It is declared that in no single instance in the commonwealth is the staff admitted to be necessary, being provided, and that this is true not only in regard to general division officers, but also in regard to professional officers on whom the responsibility for all the work of the growing department rests. The difficulty is declared to be of two kinds: First, there is the fact that the necessary machinery to provide the staff cannot be set in motion until it has been demonstrated that the necessity for the staff actually exists; that is, no provision has been made to provide staff in advance of requirements. And second, when set in motion, the machinery moves so slowly that before the staff estimated to be required for any one year has been appointed the growth of the service calls for still further additions.

The deputy postmasters general report, in the same volume, that during 1912, the work of replacing the existing iron poles with wooden poles along the northern railway to provide for future extensions, was continued. When this is complete, there will be a new wooden pole line on the direct route from Sydney to the Queensland border. Similar work was

commenced on sections on the western line, and also on the southern railway line, where extensive alterations and removals have had to be effected in consequence of the railway duplication works.

The extension of main trunk circuits was continued, particularly on the northern sections, in connection with the repoling previously referred to. By the end of 1913 all the important towns along the northern railway line from Sydney to the Queensland border, on the North Coast Railway to Dungog, and along the North-Western railway line to Moree, were expected to be connected by telephone.

The conversion of existing single wire circuits to metallic circuits has progressed. In the metropolitan area, at the end of 1912, out of over 25,000 lines only 19 per cent. were single wire circuits.

The survey of the metropolitan telephone network, started in 1911, has been completed, and arrangements are in hand for similar development study work to be carried out at important country centers.

The work of laying underground stoneware conduits in order to obviate the necessity for overhead construction was carried on extensively in 1912, urgent works in many of the congested areas in Sydney and suburbs having been attended to. Provision has also been made for underground extensions at Newcastle, Wagga, Albury, West Maitland, and Bathurst.

The total number of public telegraph and telephone circuits on December 31, 1912, was 676—an increase of 56 for the year.

loss account by states under each of the branches in the foregoing table.

The following table shows the financial results exclusive of interest, depreciation and central office administration charges, for the year ending June 30, 1913, for the various metropolitan telephone systems, showing Sidney the largest of the six principal systems, to be the only one in which the expenditure exceeds the revenue.

Cause of the high cost of operating, etc., in the Sydney metropolitan exchange is declared to be the peculiar geographical contour of the city, and the fact that there are 29 different exchanges in the system. The number of exchanges is very much greater than in other cities, and results relatively in a higher cost of operating. Other reasons are being sought. The working results in Brisbane also compare unfavorably with other cities and special investigation is being made into the causes. A condition which has a great influence upon the cost of operating at smaller exchanges is the granting of continuous service. In many of these exchanges the cost of operating alone far exceeds the revenue derived.

The chief accountant states that a careful study has been made into the question of depreciation, the causes of which are summarized under three heads: Physical decay; obsolescence (through the progress of invention); and inadequacy (through the growth of the business rendering existing assets inadequate). All the assets of the department were found to be subject to depreciation, except that under the head of "sites."

City	No. of Subscribers	Capital	Oper. Exp.	Repairs and Renewals	Total	Earnings	Surplus	Deficit
Sydney	23,370	$4,987,428	$629,457	$620,651	$1,250,108	$1,068,247	.....	$181,862
Melbourne	19,914	5,270,218	378,920	305,713	684,633	815,075	$130,442	
Brisbane	5,061	953,678	76,725	118,215	194,940	197,219	2,279	
Adelaide	5,903	1,196,503	74,426	78,552	152,978	259,043	106,065	
Perth	4,420	925,013	90,022	68,069	158,091	192,305	34,214	
Hobart	1,465	204,708	16,247	26,438	42,685	51,740	9,055	

A Comparison of Results of Operation in the Most Important Metropolitan Exchanges.

The interruptions totalled 3,926—an increase of 1,223, averaging 5.8 per circuit. In this connection it is explained that during the year the lines were subjected to more than usually severe weather conditions and that blasting operations in connection with railway works were also responsible for more than their fair proportion of interruptions.

The general report of the department also embraces a report from the chief accountant, who includes the profit and loss account of the telephone branch for the year ending June 30, 1913. Note is made of the fact that nothing has been credited to the telephone branch for the use of the telephone system on postal or telegraph business. Similarly nothing has been debited to the telephone branch for postage on correspondence and for the transmission of telegrams or telephone business. In addition to the telephone branch profit and loss account, already given, and referred to in the secretary's report, the chief accountant subdivides the account to show results under the different branches of the service as follows:

	Loss	Profit
Telephone exchanges	$ 844,723	
Toll lines (other than Melbourne-Sydney	262,987	
Non-exchange lines		$16,423
Sydney-Melbourne toll line		13,549
Total	$1,107,710	$29,972
Total net loss	$1,077,738	

The report also includes tables showing the profit and

A review of the history of the department showed that a great portion of the assets had been maintained in an efficient working condition, although in a great many cases the estimated life of such assets had expired. It was therefore concluded that as the daily expenditure on repairs, renewals and replacements had been sufficient to continuously maintain the asset at its full earning capacity, such expenditure covered depreciation due to physical decay, and special provision for depreciation was unnecessary. These views were discussed with the chief electrical engineer in regard to their application to the telegraph and telephone branches and he advised as follows:

The assets may be summarized under the following headings: Aerial lines, underground lines, submarine lines, telephone equipment in exchanges, telephone equipment in subscriber's premises, and telegraph equipment. As far as aerial lines are concerned, the amount spent on repairs and renewals should maintain the asset for all time in an efficient condition so far as physical decay is concerned, and unless some radical and up to the present entirely unforeseen change in methods is adopted, the provision for obsolescence and inadequacy will be so distributed as to enable them to be dealt with in the same manner as maintenance.

So far as underground and submarine lines are concerned the position is, however, different. In underground lines the physical decay, obsolescence and inadequacy can be provided for in the same way as for aerial lines, so far as the cables are concerned, but so far as the conduits are concerned this may not apply. Experience on this point, however, has not been sufficient to say what provision should be made for obsolescence and inadequacy. It seems, however, probable that when any action is necessary in connection with conduits it will involve heavy expenditure which cannot be

distributed in a manner similar to that in the case of aerial lines and therefore some provision for obsolescence and inadequacy seems justifiable. I consider that the provision which should be made for conduits should be 2 per cent. on the expenditure for this item. For submarine lines a similar provision should be made.

So far as telephone equipment in exchanges is concerned, here again the capital investment is concentrated in large units on which the expenditure of ordinary maintenance does little more than keep the plant working, providing practically nothing for physical decay and nothing for obsolescence and inadequacy. I do not think that the number of units is sufficiently great to justify the ordinary maintenance expenditure on any individual unit being treated as sufficient to meet physical decay, obsolescence, and inadequacy, and therefore some provision should be made by means of a depreciation account to cover renewals of such units or such portion of the cost as cannot be covered by the ordinary provision for maintenance in any one year.

On this account I think it will be necessary to make a provision of 3 per cent., for the reason that so many switchboards were or will be installed about the same time, and it is therefore reasonable to assume that when the time comes to replace them the expenditure will not be uniformly distributed. The fact that the individual units of this item are large and costly, accentuates the necessity for a provision for depreciation.

So far as telephone equipment in subscribers' premises is concerned, I consider that physical decay, obsolescence and inadequacy can all be covered by ordinary maintenance charges for the reason that this equipment is distributed over so many localities—that is to say, contains so many units as to level up the expenditure on the maintenance of them over a given number of years. Further, seeing that all the individual units do not commence life together, their lives will not expire together, nor are the individual units subject to the same wear; thus, not only is maintenance distributed, but renewals are also distributed pretty uniformly over each year, making it a comparatively simple matter to cover the whole of the expenditure on this account by ordinary maintenance. The same consideration also applies in the case of telegraph equipment.

Summarizing, therefore, my views are that, having regard to the distributed nature of the assets and the number of individual units comprising each section, and the fact that the lives of the individual units will not expire simultaneously, apart entirely from interest and sinking fund, provision for maintenance, obsolescence, and inadequacy can be covered by the ordinary maintenance charges, with the exception of assets such as underground lines, (conduits), submarine lines, telephone equipment in exchanges, and for these items a provision for depreciation should be made.

The chief accountant states that it was decided to act upon the advice of the expert technical officers in regard to telegraph, telephone, and wireless assets, and that in order to create an even annual charge to working expenditure necessitated by heavy replacements of tunnels and conduits, submarine lines, equipment in exchanges, wireless telegraph equipment, and buildings, an annual charge should be made to the profit and loss accounts and transferred to an account styled "Depreciation Reserve Account." It was decided that the depreciation reserve account should be utilized for the purpose of bearing wholly or partly the cost of replacements which would otherwise result in an abnormal charge to the profit and loss account of the year in which the replacements actually occur. The depreciation reserve is purely a book entry and is not represented by hypothecated cash at the treasury. The amounts which have been charged to the profit and loss accounts during 1912-13 and transferred to depreciation reserve, total $189,778. In addition, certain other amounts totalling $181,798 have been charged to the profit and loss accounts as "ascertained" depreciation. This is chiefly accounted for by the treatment of special replacements the costs of which, for the purpose of convenience, have been charged as capital expenditure, while the book values of the "dismantled" assets, less the value of "recovered" material, have been written off as depreciation. The sum of $181,215 was charged to the profit and loss accounts as "Ascertained" depreciation for the year in respect of dismantled assets which had not been replaced or had been replaced by new assets which were charged as capital expenditure.

Sundry amounts totalling $583 were charged during the year as depreciation on account of specific damages, etc., to stores in stock, making a grand total for depreciation of $371,576.

Canadian Telephone Statistics for 1913.

Telephone statistics for the Dominion of Canada for the year ending June 30, 1913, just published by the Department of Railways and Canals of Canada, show a marked increase in the use of telephones within the last 12 months. The report states that so far as these figures are complete there is one telephone now in use in Canada for every 16.2 persons and it thought that if absolutely completed figures had been received this number would be lowered to possibly 15. The total number of organizations which made statistical returns to the department was 1,075.

The report states that there are over 100 organizations known to the government from which replies were not received and that there are probably a considerable number of smaller organizations of which the government has no direct knowledge. It is evident, therefore, that the total number of telephone companies at present operating in Canada would be 1,200 or possibly 1,300 altogether.

The character of the various telephone organizations varies considerably in the different provinces. In Alberta the telephones are operated by the provincial government as one comprehensive system. In Manitoba this is practically the case, but there are a number of telephone companies still operating. Saskatchewan, while having its government system, has also a very large number of small stock companies. In Ontario and Quebec the situation is controlled by the Bell Telephone Co., especially in Quebec. In Ontario the number of stock companies and co-operative companies has increased rapidly so that Ontario's total of telephone organizations is greater than in any other province of the Dominion. The accompanying table explains the distribution in the various provinces:

Province	Government.	Municipal.	Stock.	Co-operative.	Partnership.	Private	Total.
Nova Scotia	..	..	21	28	17	17	83
New Brunswick	..	..	12	3	1	9	25
P. E. Island	..	..	1	..	..	..	1
Quebec	..	..	44	26	3	28	101
Ontario	1	38	143	148	41	80	451
Manitoba	1	7	5	14	1	7	35
Saskatchewan	1	5	304	42	..	9	361
Alberta	1	1	1	..	..	..	3
British Columbia	..	1	12	1	..	1	15
Total	4	52	543	262	63	151	1,075

The report shows that there are now 1,092,587 miles of wire in use with 463,671 telephones. The gross earnings in 1913 were $32.13 per telephone, and operating expenses $24.10 per telephone. Capitalization amounts to $129.13 per telephone. Of the total number of telephones in use 269,843 are central energy type and 193,828 are magneto type.

Meeting of Western Oklahoma Independents.

Oklahoma Independent telephone men from Mangum, Willow, Afton, Gould, Martha, Foss, Texola, Leedey, Canute, Trail, Cheyenne, and Erick attended a recent meeting of the Western Oklahoma Independent Telephone Association at Hammon, Okla. President D. F. Vincent presided. An interesting talk as to the benefits to be derived from an organization of this kind was given by D. H. Wright, of Mangum. Several other members voiced the need for a state association. The secretary was instructed to send a circular letter to all Independent companies not now members of the association, requesting their support and representation at future meetings.

Change in Management of Kansas City Home Company.

Theodore Gary, president of the Kansas City Home Telephone Co., has announced a change in the management of that company. A. F. Adams has been elected vice-president and general manager of the company to succeed O. C. Snider, resigned. H. L. Gary has been made treasurer.

The Gary interests have been operating extensive Independent telephone properties in Missouri and Kansas for the last 16 years and all of the men associated with Theodore Gary have had long experience in the telephone business. Mr. Adams has been assistant to the president, general manager and engineer of all the telephone properties comprising the Gary system. He has maintained offices at Kansas City, Joplin and St. Joseph, Mo., from which points he directed the affairs of telephone companies embracing Joplin and other southwestern Missouri points, St. Joseph, Topeka and Atchison, and a long distance system operating in northeastern Kansas and northwestern Missouri.

Mr. Adams is vice-president of the Gary Investment Co., the Southwestern Blaugas Co., of Kansas City, the Mississippi Valley Blaugas Co., of St. Louis, the Home Telephone Co., of Joplin, and other affiliated telephone companies.

Theodore Gary has also announced that the Kansas City Home company will spend $200,000 in Kansas City for improvements and extensions, beginning immediately and covering six months.

Program of Iowa Independent Telephone Convention.

Chas. C. Deering, secretary-treasurer of the Iowa Independent Telephone Association, has announced the program for the 18th annual meeting of the association to be held at Chamberlain Hotel, Des Moines, Iowa, on March 17, 18 and 19. The program follows:

TUESDAY AFTERNOON SESSION.

Address of welcome, Mayor Hanna, Des Moines.
President's address, H. L. Beyer, Grinnell, Iowa.
Report of secretary-treasurer, Chas. C. Deering.
Appointment of committees.

WEDNESDAY MORNING SESSION.

"Independent Telephony," C. B. Randall, St. Paul, Minn.
"Appraisals and Valuations," E. C. Hurd, Lincoln, Neb.
"Accounting," J. W. Coffey, Indianapolis, Ind.

WEDNESDAY AFTERNOON SESSION.

"Interference of Transmission Lines:
From an Engineering View, G. E. Bickley, Waterloo, Iowa.
From a Legal View," H. L. Beyer, Grinnell, Iowa.

WEDNESDAY EVENING.

Entertainment.

THURSDAY MORNING SESSION.

"Publicity," L. W. Grimes, Des Moines, Iowa.
"Workmen's Compensation Law," Warren Garst, Iowa Industrial Commissioner.

THURSDAY AFTERNOON SESSION.

"Underground Construction for Small Plants," L. W. Stanton, Davenport, Iowa.
Question box and experience meeting.
Committee reports.
Election of officers.

Program for Meeting of North Dakota Association.

The eighth annual convention of the North Dakota Independent Telephone Association will be held at the Commercial Club, Fargo, N. D., on March 25-26. Secretary R. P. Baird believes that the program will attract a very good attendance as the association has discontinued the plan of soliciting papers from among its own members and is endeavoring to have addresses from sources of interest to all operators and telephone companies. The program for the coming convention is as follows:

WEDNESDAY MORNING SESSION.

Registration and reception of members and visitors.
Address of welcome, H. F. Emery, president city commission.
Response, Judge Carmody.
President's address, C. H. Coar.

WEDNESDAY AFTERNOON SESSION.

Organization of convention.
Selection of committees.
Address, President McVey, of the North Dakota State University.
Address, J. C. Kelsey.
"Pole Preservation," Representative of Government Forestry Service.
Announcements.
General discussions.
7:30 p. m., special program at Orpheum Theater, featuring "Spinners of Speech" and "Operation of Automatics."

THURSDAY MORNING SESSION.

Address, Thomas Cooper, director Better Farming Association.
Salesmen's talks.
Visiting exhibits.

THURSDAY AFTERNOON SESSION.

Address, Hon. Tracy R. Bangs.
Remarks, J. P. Hardy, secretary Commercial Club.
Address, Hon. W. H. Stutsman, president Board of Railroad Commissioners.
Reports of committees.
Unfinished business.
Adjournment.
7:00 p. m., banquet.

Bouy Fitted With Telephone for Submarines.

The recent sinking of the British submarine boat has directed attention to an invention designed to permit telephonic connection between the crew of a sunken submarine and rescuers on the surface. As described by the London News this invention consists of a special buoy, which is carried as a part of the equipment of the submarine, the buoy containing a telephone instrument. Upon any accident happening to the craft the buoy comes to the surface, thus not only marking the position of the craft, but enabling telephone communication to take place between the crew of the sunken boat and rescuers on the surface. Those coming to the rescue row up to the buoy, open its lid, take out the telephone instrument and are thus immediately in touch with those below.

Southwestern Bell Men Meet at Oklahoma City.

A discussion of ways and means for improving long distance service through an exchange of information as to local conditions existing in the different states was a feature of a recent meeting at Oklahoma City, Okla., of traffic men of the Bell telephone companies of the southwest, held in the offices of the Pioneer Telephone & Telegraph Co. Problems of getting quicker service and of minimizing complaints and running down the causes for them were under discussion.

Opposition to Payment in Advance in Indiana.

The cutting out of more than 100 telephones in Monticello, Ind., recently as a result of the Monticello Telephone Co.'s efforts there to collect quarterly rentals in advance was followed by a meeting of business men. A petition to the company was read in which the citizens informed the company they will cancel their contracts and discontinue the service unless the rural telephone service is restored. It was reported farmers are organizing a new company and proposing to establish a plant at Buffalo, Ind.

Proceedings Before Commissions, Courts and Councils

Discussions and Rulings of State Bodies Having Supervision of Telephone Companies, Decisions of Courts in Matters Affecting Public Relations of Utilities and Actions of City Councils Bearing Upon Franchises, Rates and Service

Illinois Commission's Anti-Duplication Policy.

The newly organized Illinois Public Utilities Commission has affirmed in a recent decision, its anti-duplication policy in considering applications for certificates of convenience and necessity.

The decision was made in the case of the Macon County Telephone Co. against the Bethany Mutual Telephone Co., in which it was sought to prevent the mutual company from establishing an exchange on the ground that adequate service was already being given in the territory in question by the complainant. The ruling announced by the commission was as follows:

"This commission holds that the facts in this case bring the case under the policy of this commission, which is that certificates of public convenience and necessity will be denied to telephone companies where the application is for the establishing of an additional telephone system in a city or village where a telephone system is already in operation and is furnishing adequate service at reasonable rates."

End of Louisville Litigation.

The long standing litigation between the city of Louisville, Ky., and the Cumberland Telephone & Telegraph Co., was terminated recently in the federal court when Judge Walter Evans signed a decree tendered by all parties concerned, dismissing the case according to the terms of an agreement previously entered into by the city and the Cumberland company. By this agreement practically every point contended for by the city is granted, and virtually all the expense of the litigation, reaching over a period of about five years, falls on the telephone company. The costs in the case aggregate about $50,000 exclusive of what the company paid its own lawyers. The total expense of the litigation to the city is estimated at something less than $5,000, consisting of fees for accountants, expert witnesses and other features not included in court costs.

The rates for all classes of service on residence lines are to be those fixed in the Grinstead ordinance. The company had sought to maintain a rate of $90 a year for straight business lines, but the city, under the agreement, secures a rate of $72 for this service. The metropolitan service is abolished and free service extended.

The $137,000 refund due subscribers under the agreement, it was stated will be placed immediately on deposit at the Fidelity & Columbia Trust Co. and paid on demand to subscribers.

Rehearing Refused in Pioneer Telephone Company Case.

The Oklahoma Supreme Court has refused a rehearing to the Pioneer Telephone & Telegraph Co. on its appeal from the order of the Oklahoma Corporation Commission requiring it to refund approximately $62,000 in alleged excess charges to subscribers in Oklahoma City. The court recently affirmed the order of the commission and upheld the constitutionality of the law passed by the fourth Oklahoma legislature, authorizing the commission to take charge of the collection of such refunds from public service corporations and distribute them to the individuals directly affected. That order is now made final, unless the company decides to take it to the Supreme Court of the United States.

The commission, which has no additional help available for that class of work, is checking up the alleged overcharges as rapidly as possible, but has announced to subscribers who are writing in to inquire about the matter, that it probably will be several months before matters are in shape for action.

The chamber of commerce of Oklahoma City is now trying to get subscribers who have refunds coming to them to assign them to the chamber of commerce, in an effort to raise in that way the $53,000 which Oklahoma City is required to turn into the state treasury before construction work on a state capitol building is started.

New York Commissioner Expert in Ohio Valuation Case.

In a recent hearing at Columbus, Ohio, before the Ohio Public Utilities Commission, M. R. Maltbie, formerly a member of the New York Public Service Commission, gave expert testimony regarding the elements entering into the appraisal of the properties of public utilities. The case was that of the city of Bucyrus vs. the Bucyrus Light & Power Co. In the course of his testimony, Mr. Maltbie said that a valuation which included discount on bonds, losses incurred while the utility was young and expenses of securing the business when the company starts, was "inflated and false."

"To include discount on bonds in the valuation of any utilities plant would mean to encourage a bad precedent of considering 'the greater the loss, the greater the value.'" said Mr. Maltbie. "Inclusion of early losses in estimating a value as a basis for calculating rates, would place little penalty on inefficiency during early management. The expense of a going concern, or the expense of attracting business should be considered as operating expense; otherwise values are inflated and false."

Mr. Maltbie added that franchises of less than ten years, which usually are given electric companies in Ohio, increase the hazard and expense of financing such a utility.

Appeal of Milwaukee Silent Telephone Case.

Circuit Judge E. Ray Stevens, of Madison Wis., recently granted the motion of Attorney General Owen of Wisconsin, to strike out on the ground of irrelevancy certain paragraphs in the complaint of B. O. Fox of Milwaukee against the Wisconsin Railroad Commission in the silent telephone case. Mr. Fox sought from the commission an order to permit the general public to use the 1,000 silent telephones in Milwaukee. The commission refused, holding that this type of telephone was justifiable. Mr. Fox appealed to the circuit court. In his decision, Judge Stevens declared that the question of whether the order of the commission is unreasonable or unlawful may be fully litigated before the court without regard to the proceedings had or action taken by the defendant or any of its agents or employes while the matter was pending before the commission. The reasonableness of the order, says the court, is to be determined by the evidence received in court and not by proof as to the conduct of the commission in making the order.

Judge Stevens further held that the language used by the plaintiff would warrant the court in striking out the entire complaint, but that the court would not enter that order because satisfied that the plaintiff thought that the protection of his rights demanded that he impeach the order of the commission as he would the award of arbitrators which might

otherwise be binding upon him. The court added that to protect his rights the plaintiff need not assume this burden. The allegations remaining give the plaintiff the right to fully present his case and give the court power to vacate or set aside the award if the evidence warrants such action.

New York Companies Oppose Legislative Bills.

Opposition to the bills to compel the telephone and telegraph companies in New York to place their wires in villages in underground conduits was shown at a recent hearing before the legislative committees to which the bills were referred. Attorney Howard Hendrickson and W. A. Pruyn, representing the Rome Telephone Co. and the Albany office of the Postal Telegraph Cable Co., declared it would interfere with the service to put telephone and telegraph wires in the same conduit with high tension wires. Former Senator Ferris, of Utica, said the expense would put some of the small companies out of business. Mr. Guardineer, an owner of rural lines in Rensselaer and Columbia counties, said he can give good service now at quite low rates, but could not do so if the expense of installing wires in conduits were added.

Van Santvoord Chairman of New York Commission.

Governor Glynn, of New York, has appointed Seymour Van Santvoord, of Troy, as chairman of the Public Service Commission, Second District. It is now expected that the work of making an appraisal of the property of the New York Telephone Co. in New York City will be pushed vigorously.

Sale Price of Indiana Public Utility Bonds.

In an opinion given the Indiana Public Service Commission, Attorney General Honan, of Indiana, holds that the commission has no authority, under the Indiana utility statute, to authorize the sale of bonds of a public utility at less than 75 per cent. of their face value, excepting only bonds authorized prior to February 1, 1913, and not issued. These may be sold, if the commission so authorizes, at not less than 65 per cent. of their value. The opinion also states that no utility can be authorized by the commission to pledge its bonds as collateral for less than 75 per cent. of par value.

Dividend Rate of Logansport, Ind., Company.

During a recent hearing of the petition of the Logansport Home Telephone Co., before the Indiana Public Service Commission to increase its rates, it was brought out that the company has paid nearly eight per cent. in dividends since 1902, with the exception of the year 1910.

Telephone Development in Mercer County, Pa.

An interesting telephone development is taking place in Mercer County, Pa., in a region not previously reached by telephones. Both the Independent and the Bell companies are building lines into the country around Bethel, Neshannock and Virginia, on the Sharpsville R. R. The lines will be from eight to 10 miles in length and will serve a region which was formerly a coal country.

Summary of State Commission Hearings and Rulings.

CALIFORNIA.

February 24: Decision upon the application of the Southwestern Home Telephone Co., of Redlands, for authority to issue $101,300 in short term notes and to pledge $197,000 in bonds as collateral security therefor. The commission does not make a final ruling in the case but states that it will hold the matter in abeyance until July 1, 1914. It directs the company to take steps to reduce its indebtedness, both floating and bonded indebtedness. The commission also calls upon the company to arrange to cancel $300,000 in stock which was issued originally on a contract by which the company had the right to retire it upon the payment of $3,750.

March 23: Postponed hearing on the complaint of the Southwestern Home Telephone Co. against the Southern Sierras Power Co., over the matter of induction.

INDIANA.

The following telephone cases are now pending before the Indiana Public Service Commission: Central Union Telephone Company, Elwood, readjustment rates; John H. Hubers et al., vs. Cumberland Telephone Co., adjustment of rates; American Telephone & Telegraph Co., increase rates; The Whitesville Co-operative Telephone Co., increase rates; The Mooreland Rural Telephone Co., increase rates; Odell Telephone Co., to transfer property to George S. Akers, Tippecanoe county; Central Union Telephone Co., Peru, readjust rates; People's Mutual Telephone Co. vs. Central Union Telephone Co., physical connection, Wolcottville; The People's Telephone Co., Bryant, to issue $8,000 worth of stocks; Central Union Telephone Co., to adjust and increase rates—refused unless a consolidation of the two Indianapolis companies can be effected; Byron Bingham et al. vs. Cumberland Telephone Co. and Princeton Telephone Co., asking physical connection between two companies at Patoka, Ind.

KANSAS.

February 7: Order authorizing the Neosho Rapids Mutual Telephone Co. to increase its rates to $1.50 per month for city individual line business service; to $1.25 per month for city party line service and to 75 cents per month for farm line party line service.

February 7: Order permitting the Claflin Phone, Light & Garage Co., of Claflin, Kan., to file its amended schedule of rates providing a charge for rural line subscribers of $1.50 per telephone per month, or $15 per annum when paid six months or more in advance. The commission approved the rule that all rentals (unless paid six months or more in advance) shall be payable monthly in advance and toll charges shall be due at the end of each month. If amounts due on the first day of each month are not paid by the 15th of the month, service may be discontinued.

February 7: Consent to withdrawal of the application of the Ellinwood Telephone Exchange, Mat Dick, owner, for permission to increased rates.

February 7: Consent to withdrawal of P. A. & P. Telephone Co.'s application to issue additional stock.

February 13: Order consenting that the telephone plant and property of E. E. Stout, of Hartford, Kans., be sold, transferred and assigned to W. W. Finney, of Emporia, Kan.

February 14: Order authorizing the Medora Mutual Telephone Co., of Medora, Kan., to increase rates from $10 per annum or $2.50 per quarter, to $11 per annum or $3 per quarter, all rentals payable in advance.

February 25: Order consenting to dismissal of the application of the Edwardsville Telephone Co. to issue its capital stock in the sum of $15,000.

February 25: Order permitting the telephone plant of J. F. Hull, owner and manager of the Ellis Telephone Co., of Ellis, Kan., to be sold, transferred and assigned to the Ogallah Telephone Co., of Ogallah, Kan.

February 25: Order consenting that the telephone exchange of A. C. Ferris and F. C. Ferris, at Syracuse, Kan., to be sold to B. I. Wells, of Syracuse, Kan.

February 26: Order authorizing the Courtland Telephone Co., of Courtland, Kan., to issue bonds of $10,000 due January 1, 1914, with interest at six per cent. payable semi annually. The bonds are to sell at not less than 95, the proceeds to be used to pay off present bills payable $4,500; to provide betterments and extensions $3,000; and to build a new $2,500 exchange building at Courtland, Kan.

March 31: Hearing as to the efficiency and sufficiency of the telephone facilities and services of the Kansas City Long Distance Telephone Co., at Ottawa, Kan.

MISSOURI.

March 16: Postponement hearing on proposed increase of rates of the Southwestern Telegraph & Telephone Co. in the St. Louis district.

WISCONSIN.

March 4: Hearing on application of the Trego Telephone Co. for authority to increase rates, tolls and charges. Hearing in the case of the Trego Telephone Co. vs. the Earl Telephone Co.

March 17: Hearing on application of the Mosinee Telephone Co. for authority to increase rates.

March 18: Hearing on application of Norwalk Independent Telephone Co. for authority to increase rates.

March 20: Hearing in case of Clark County Telephone Co. vs. Wisconsin Telephone Co. and the Badger State Telephone & Telegraph Co.

March 20: Hearing on application of the St. Croix Telephone Co. for authority to increase rates.

Queries on Theory and Practice

Charging of Storage Batteries.

I would like to be clear on one or two items referred to by H. M. Beck in an article published in TELEPHONY in the issue of March 8, 1913, viz: In the event of a battery being on discharge, the plates become uncovered by the electrolyte. Can the water be added, or must the battery be taken off, discharged, and recharged and water added then?

In charging at normal rates, should the current be kept up until the specific gravity has risen to .5 below the maximum reached on overcharge? That is to say, if the normal rate of charging is 70 amperes and the specific gravity varies from 1.170 when discharged and 1.210 when charged, should the amperage be kept constant at 70 amperes or allowed to go back of its own accord. A case in point: When starting charging the machine is set at 70 amperes, 25 volts, and after reaching 1.200, the ammeter shows a reading of 30 amperes. Should it again he brought up to 70 amperes or left until 1,210 is reached by the 30 amperes allowed to go in?

When it is desired to overcharge, the specific gravity reading 1.210, how would the amperage be adjusted then, taking 70 amperes as normal rate? A set of cells while charging reaches 1.206, usual reading 1.204. Could this set be put on discharge or must the charge be continued until 1.210 is reached? While charging it is noticed, at the end of an 85-hour charge, that the cells read 1.205 and on testing for 10 hours the specific gravity jumps to 1.210. Would you say that they are undercharged?

Taking up the questions in order, Mr. Beck, of the Electric Storage Battery Co., furnishes the following replies:

1. Regarding the addition of water to cells, water should preferably be added to the cells during or just before a charge, so that the gassing will mix it with the electrolyte. However, it is not nearly as important when the water is added, as it is to keep the plates covered with electrolyte; therefore, if the plates become uncovered, water should be added at once, irrespecive of what the battery is doing; and it is not necessary on this account to take the battery off discharge and charge it. In other words, it is better to add the water at the proper time, but this is not a very vital matter in connection with telephone batteries, and not nearly as important as keeping the plates covered with electrolyte.

2. In regard to whether the charging rate should be kept up to normal or allowed to drop, this is a question which it is difficult to answer definitely without knowing something more of the conditions. Our standard practice in charging telephone batteries is to keep the charging rate up to approximately normal, where the generator has sufficient capacity, and other conditions do not make it advisable to follow some other practice. Cases often arise where there is not sufficient generator capacity to charge the battery at the full normal rate and at the same time carry the exchange load, and in such cases it is necessary to charge at less than normal rate. By the "charging rate," we always mean the current actually going into the battery and not the current being generated. as the latter includes the exchange load. Where the charging rate is too low, the indications of the completion of the charge get very indefinite, due to the slow increase in either voltage or gravity, and on this account, where it is desired to charge at below the normal rate, we usually fix the low limit at one-half the normal rate. In other words, provide means for charging at least one-half normal rate. In many systems it is desirable to float or charge the battery during periods of heaviest exchange load, so that this load is carried directly from the generator, the loss in the battery due to this work thus being obviated. In the case of a common battery it is generally desirable to float when the exchange load is sufficient to enable the running of the generator at a reasonable efficiency, say, down to 70 per cent. of its normal efficiency, whatever that happens to be. Where this condition holds, it may be desirable to charge at a rate below normal in order to prolong the period of charge through the heavy exchange load and enable the generator to be run efficiently during this period. You will thus see that the method of charging depends upon the local conditions. But, as already stated, where the charging of the battery is all that has to be considered and there is plenty of generator capacity available, the general practice should be to keep the charging rate up to somewhere near normal throughout the charge.

3. Regarding the overcharge, this, wherever practical, should be put in at the normal rate, and if the rate is below normal, the charge should be continued proportionately to a longer maximum than one hour. In other words, at one-half normal rate the charge should be continued until the gravity and voltage show no increase for at least two hours. Emphasis should be placed on the fact that the overcharge should not be continued to any given specific gravity, but until the specific gravity stands still or ceases rising for a given time. The final gravity reached may or may not be 1.210. Overcharges should always be continued to the proper maximum where it is possible to do so. Where for any reason it is necessary to interrupt an overcharge and take a discharge, there is no objection to this, provided a regular overcharge is given as soon as convenient. In the case of the regular charges, or those coming in between the overcharges, these also can be discontinued before the regular charging point, that is, five points below the previous overcharge maximum has been reached, where it is desired for any reason to do so. Emphasis, however, should be laid on giving a battery a regular overcharge once a week, as far as this is possible.

It will be noticed that where the specific gravity is read at the end of a charge when the cells are gassing freely the reading will be below that obtained after the charge has been cut off for some time and the gas has been liberated from the electrolyte. This is due to the fact that the mixture of electrolyte and gas has a lower specific gravity than the pure electrolyte, and this probably explains why when a reading was taken at the end of an 85-hour charge, the cells read 1.205, and ten hours later read 1.210. Another factor might have been that the temperature of the electrolyte fell during these ten hours, which would also have a tendency to bring up the specific gravity.

Singing of Receiver Against Transmitter.

I would like very much to learn what is the cause of the shrill piercing sound when a receiver is held close to the mouthpiece of the transmitter. There is quite a bit of such annoyance on our lines and if there is any sure cure for it, please let us have it through TELEPHONY.

When the receiver is placed against the transmitter mouthpiece and a little noise started near the instrument, the transmitter vibrates. This makes the primary current undulate, inducing a current in the secondary of the induction coil. This induced current goes through the receiver, making its diaphragm vibrate. This makes a noise, which acts on the transmitter diaphragm, and augments its vibration. This in turn causes more induced current in the receiver, which reacts on the transmitter to sustain the sound. We might say that the sound and electrical waves travel around in a closed path, through transmitter, coil and receiver.

It is a test of a good telephone to make it sing in this way. Any means taken to prevent it will result in weakening the loudness of transmission. By some peculiar coil arrangements, this singing can be eliminated, but they are not practicable for regular exchange use. No matter what you do, the evil-minded person will find some way of annoying others.

Out of the Mail Bag

We had a gratifying letter the other day from LeRoy Parker, certified public accountant, of Columbus, Ohio. Mr. Parker is auditor for the Columbus Citizens' Telephone Co., the United States Telephone Co., and their allied companies, and wrote this letter to enclose his order for advertising space in TELEPHONY. Of course, the receipt of the advertising contract was pleasant, but what was even more gratifying was the conclusion of Mr. Parker's letter. "While I am well known in the state of Ohio," he said, "and have a large practice among the Independent telephone companies, yet I am fully convinced that there is an extensive field for my profession, and I have great faith in TELEPHONY as an advertising medium. I am further prompted to patronize your paper by reason of the fact that the Independents would not today be in their present advantageous position were it not for the direct influence of your paper."

TELEPHONY has worked sincerely in behalf of the Independent telephone movement, and appreciates such words of commendation. As a general thing, TELEPHONY's policy has been endorsed by the telephone men in the field, but there are always differences of opinion and occasionally a critical brick has been flung in this direction. Readers of the "Mail Bag," however, will readily believe that the preponderance of comment is strongly in favor of the journal. So long as that continues to be the case, the editor can reasonably believe that the paper is fulfilling its mission fairly well.

"We take delight in your journal—or, rather, *our* journal," says D. O. Hazelton, general manager of the Dalhart Telephone Co., of Dalhart, Tex., in a letter addressed to the editor of TELEPHONY. We like that phrase, "our journal," for that is precisely how TELEPHONY wants its readers to regard this publication. It has been the editor's aim to make this paper a forum for telephone men, to which they can turn for information and advice. It is *their* journal, and the editor's constant effort is to make it representative of the field and useful to the men in that field.

The Dalhart company, of which Mr. Hazelton is also secretary-treasurer, operates exchanges at Dalhart, Channing and Stratford, Tex., and has toll lines reaching Amarillo, Clayton, Corlena, Texline, Texhana, Nora Visa, Tucumcari and Hartley, besides long distance connections to all points in Texas, Oklahoma, New Mexico, and Colorado.

Charles Bennett, of Tribune, Kan., closes a letter enclosing his renewal remittance by saying: "May TELEPHONY live long and prosper!" The same to you, Friend Bennett, and many of them!

"We could not get along without TELEPHONY," says P. D. Smith, manager of the Current River Telephone Co., of Fremont, Mo., in a letter renewing his subscription.

"I find the advertising pages interesting and look them over as regularly as the reading pages," writes a Central Union subscriber from Akron, Ohio. "I think the "ad" of Mathias Klein & Sons on page 2 of the last issue is one of the best I have ever seen. Every telephone man will study that collection of tools with interest."

Speaking of the Klein concern, a manufacturer of telephone apparatus was in TELEPHONY's office the other day and told of bidding on some work for the United States government. "I was impressed with the fact," said he, "that wherever tools were mentioned, Klein's tools were specified as the standard. It convinced me that M. Klein & Sons must have the real goods when Uncle Sam designates them in government specifications."

"The magazine is worth more than you ask." writes the Public Service Telephone Co., of Leesburg, Ind. "Kelsey's letters alone are worth more than you charge for the paper."

F. M. Coker, of Los Angeles, Calif., writes. "Enclosed find order to cover subscription for 1914. This is a pleasure on account of your efforts to furnish the most reliable information at all times."

"I feel that I cannot afford to be without TELEPHONY," says John W. Stone, of Forest, Ind., in a letter enclosing remittance for subscription.

"Herewith find check for renewal to TELEPHONY," writes Alph Hoover, president and general manager of the Home Telephone Co. at Green River, Canada. "My subscription expired two weeks ago but see that I get all the numbers, as I do not want to miss any of them."

"I enclose my check for the year 1914," says Guy Francis, of Spring Grove, Ill. "I feel that I could not get along without TELEPHONY."

In his letter ordering TELEPHONY for 1914, R. C. Burchedean, of Hudson, Wis., says: "I would not like to miss a single copy."

"I have been much pleased with your paper for several years," writes W. R. Reynolds, of Stewartsville, Ind.

A. J. Chapman, of Sarles, N. D., in making remittance for 1914, says: "I surely could not get along without TELEPHONY and look for it as much as we used to look for a letter from our best girl. We would know very little of the telephone world up here without TELEPHONY."

J. A. Green, of Lone Rock, Iowa, in sending in a query, says: "One of the boys said, in regard to the Craneville serial, 'It reminds one of things he has forgotten.' Now, I will go him one better. There are some things in the story that many of us *never did* know. For instance, the tool for key adjusting. I for one, and some older heads in the business than myself, did not know there was such a tool, and we would like to know where they can be obtained. I hope to hear from you soon, either by letter or through 'indispensable TELEPHONY.'" Mr. Green now has all the information he requested in his letter.

R. Manuel Quick, of Madison, Wis., in a letter remitting for his subscription, adds: "I have been a constant reader of TELEPHONY for the past two years. After attending the convention of the Wisconsin State Telephone Association, I realized the necessity of receiving the best and most up-to-date news through some reliable way, hence, this subscription."

In forwarding the details of the election of officers of his company, A. S. Steele, president of the Consolidated Telephone Co., of Oberlin, Kan., writes: "Yesterday was the annual election of officers, and as we are regular readers of TELEPHONY and notice that a great many companies send in the reports of their annual meetings, I thought we would send in ours. We enjoy reading your paper very much."

With two feet of snow on the ground all around this vicinity, and a 60-mile blizzard howling without, it makes us envious to read this letter from Charles N. McCardless, manager of the Westphalia (Kan.) Telephone Co.: "I have not received my copy of TELEPHONY, due to arrive on Saturday, or Sunday, so there must be a mistake somewhere. I don't care to miss the paper at all, as I get no end of good out of it. We have had the most open winter that I have seen here since I have been in the business. We have had but one broken wire during the whole time, and have had but few days that we have not been busy putting up new construction. Kindly send me another copy of TELEPHONY, or I may lay off a week and come after it."

"I enclose draft to pay my subscription for two years," writes S. W. Headley, of Melville, Mont. "We cannot get along without TELEPHONY."

John E. La Mont, of Yutan, Neb., writes: "I greatly like TELEPHONY as at present carried on."

Will Lassleben, trouble shooter for the Ashland (Wis.)

Home Telephone Co., in remitting for 1914, says: "Enclosed find money order for a year's subscription to your valuable magazine, TELEPHONY. Mr. Kelsey's comments are alone worth the price of your publication."

"My classified advertisement for a wire chief in TELEPHONY certainly brought results," says L. C. Criner, manager of the McPherson (Kan.) Telephone Co., in a recent letter. "We received enough long distance calls to pay for the advertisement, besides 45 to 50 written applications. It seemed for a while as though every wire chief in the United States was tired of his job and wanted to change. There were about 15 that seemed to fill the bill."

"Enclosed find money order to renew my subscription and to pay for the parcel post map," writes C. J. Neal, of the Uintah Telephone Co., of Verval, Utah. 'I don't want to miss a single number."

"We greatly admire your journal," writes Sylvester Hoadley, manager of the Hoadley Telephone Co., at Gosport, Ind. "Enclosed find check for which please send TELEPHONY for another year."

M. C. Savelle, of the Samson Telephone Exchange, at Samson, Ala., sends in his check for two years' subscription, and says: "Please let TELEPHONY come right along. It is as welcome a visitor as any a telephone man could have. Mr. Kaufman's articles are certainly good; also Mr. Kelsey's—in fact, all of your writers are interesting."

From Factory and Salesroom

Conventions: Nebraska, Columbus, March 11, 12, 13; Iowa, Des Moines, March 17, 18, 19; North Dakota, Fargo, March 25, 26; Florida, Ocala, March 25, 26

How One Company Advertised "The Handy Mike."

The results to be achieved by well conceived campaigns of publicity are only just beginning to be understood by telephone managers generally, but a little thought given to this matter will often discover a vein of unsuspected ore that is well worth mining through the advertising columns of the local newspapers. Items are published in TELEPHONY from time to time which indicate that the public is very responsive to advertising appeals made in the right way.

The United Telephone and Telegraph Company
Begs permission to introduce you to
"HANDY MIKE"—
A Blessing to the Telephone User
Do you know about the "Handy Mike" Extension Telephone? Drop us a postal or phone and one of our solicitors will show you one of these instruments which you will look upon as indispensable when once installed.
You can use it sitting, standing or lying down, and it can be used as easily by a small child as by a tall adult—in fact it is accessible to any height.
FOR THE DOCTOR
It is a wonderful aid. He can answer night calls almost without waking up—and in the sick room it is incomparable, indispensable, inconspicuous. It can hang on the wall near the bed or on the head of the bed. You can talk without moving your head from the pillow.
For Office, Bank or Store
All the good points mentioned apply. You can write with one hand and sit back comfortably in a chair while you are using the "Handy Mike," and it never fails and breaks.
You'll admit it's the handiest, prettiest, easiest, most convenient Telephone you ever saw.
This company offers you all the advantages of the most perfect Telephone Company in existence. We are living in an age of progress. Get out of date and you get out of business. Be up to the second and you lead the procession.
Our subscribers who use the "party line" either 2-, 3- or 4-party, do not have to "count the rings" on their phone. We give you only your own.
A representative of this company will be pleased to enumerate many other advantages of the United Telephone. Phone for him or drop us a postal containing your name and address.
We now have our new exchange in perfect working order and can furnish you telephonic service that cannot be equalled in this section.
The United Telephone and Telegraph Company
524 Market Street Nolan Building Chester, Pa.

Advertisement in Campaign for Extension Station Business.

The accompanying illustration shows an advertisement run in the Chester Times, by the Union Telephone & Telegraph Co., of Chester, Pa., showing the manner in which this company advertised the Ericsson "handy mike." The Ericsson Mfg. Co., of Buffalo, N. Y., declare that this method of going after extension station business, when combined with the circulars and landern slides which the company furnishes free to telephone companies, has proved successful in increasing the revenues of various companies which have tried it. The circulars, which bear the imprint of the local telephone company, are intended for distribution to subscribers and the lantern slides are intended to be offered for display by local "movie" shows.

A Portable Telephone Testing Set.

A portable telephone testing set weighing only 7½ pounds is manufactured by The Holtzer-Cabot Electric Co., of Brookline, Mass., and 6161-6165 So. State Street, Chicago, Ill. For this set the company designed a special small, 3-bar generator, using tungsten steel for the magnets. It is said to be very powerful. The other parts used in the set are of compact design. The box is rigidly constructed, all joints being dovetailed and the corners reinforced with brass.

The Holtzer-Cabot Portable Test Set.

With the receiver in the holder, the generator rings through the buzzer. With the receiver out of the holder it rings direct to the line, the receiver at the same time being shunted out by the generator. With the receiver out of the holder, the generator will, it is declared, ring 10 1,600-ohm bells through a resistance of 4,000 ohms. The set is furnished with either an 80-ohm or 1,000-ohm buzzer. The battery is a three-cell Tungsten.

The set is finished in quarter sawed oak with nickel plated trimmings.

A New Type of Vac-M. Arrester.

A new design of Vac-M vacuum lightning arresters, known as Signal No. 4, has been put on the market by the National

Electric Specialty Co., of Toledo, Ohio. Briefly, it is a vacuum arrester of cartridge shape with brass fittings and porcelain terminal block, 5¾ ins. long, 2¼ ins. high and 1¼ ins. wide. It is a single line or grounded circuit protector but, of course, can be used on a metallic circuit line by installing two.

The usual Vac-M standards of metal and workmanship are embodied in the new arresters, and the company believes that all who appreciate what real lightning protection, service and reduced maintenance mean, will welcome the opportunity to obtain this and the additional advantage of the saving in space that this new type of Vac-M arrester affords.

Address on Insulated Wires and Cables.

W. I. Middleton, electrical engineer of the Simplex Wire & Cable Co., delivered an interesting lecture, illustrated by lantern slides, on the manufacture and testing of insulated wires and cables, at the Franklin Union, Boston, Mass., on February 26. He spoke also of the desirability of uniform specifications on insulation and the progress recently made along these lines by the Joint Rubber Insulation Committee. He pointed to the marked advance that manufacturerers have already made in their testing departments, and spoke of the new voltmeter that his own company has developed for measuring peak voltages.

Paragraphs.

McRoy Clay Works, The Rookery, Chicago, on its March calendar blotter says: "The trouble with too many of us is that we're pikers when it comes to gambling on ourselves."

Automatic Telephone, the monthly organ of the Automatic Electric Co., in the March issue contains many interesting news items relating to the progress in the use, in various parts of the world, of the automatic telephone. The serial articles, "Fundamentals of Automatic Telephony," by Arthur Bessey Smith; "Development Studies and the Fundamental Plan," by Bernard C. Groh, and "Scientific Management of Telephone Exchanges," by Roy Owens, are important and growing features of the paper.

A. P Connor, consulting electrical and mechanical engineer and solicitor of patents, 121 Carroll street, S. E., Washington, D. C., has lately arranged to take up matters of a legal nature before the various commissions and departments in Washington, D. C. He will make a specialty of matters involving engineering and technical discussions. In addition to being a patent attorney and lawyer Mr. Connor has occupied principal engineering positions in the service of the United States government and of the state of New York.

Speech of F. H. Bethell Against Government Ownership.

In a recent speech at Ten Eyck, N. Y., on the subject, "Some Comments on the Government Ownership of Telephone Properties," Frank H. Bethell, vice-president of the New York Telephone Co., said in part:

The Bell system plans to spend $60,000,000 in 1914 in extending its lines and plant. Since work began on the Panama Canal in 1904 the Bell system has spent more money in extending its lines and plant than the United States government has spent to dig the big ditch and to buy the right of way. Would Congress duplicate the appropriation for the Panama Canal every 10 years for the purpose of extending the telephone and telegraph service? No country owing its wire service has ever made anything approaching adequate appropriations for the purpose. At the outset a federal bond issue of approximately two billion dollars would be required to purchase the telephone and telegraph systems.

The federal government, it is stated, can borrow money at 3 per cent. Its present 3 per cent. bonds are selling around par only because the issue is small. A federal bond issue of two billion dollars would be likely to run the credit of the government down to a 4 or 5 per cent. basis. It is for similar reasons that 3 per cent. French government bonds sell at 82, and 3 per cent. German bonds sell at 76.

In comparing the cost of service here and in Europe, advocates of government ownership make no mention of the absence of taxation in the case of European systems or of the deficit resulting from operation. The British service last year showed a loss of $5,700,000. Nor do they refer to the character of the service, nor to the wages, hours of employment, and other conditions of labor. Even ignoring these conditions, the cost to the public here and abroad is about the same.

The following figures for 1911 and 1912, compiled from official sources, show the average toll and exchange earnings per station, of the state owned telephone systems of seven European countries to have been $36.89; the average of the Bell companies, $40.14. The exchange earnings only, for a station in the seven European countries was $26.78 and for the Bell companies, $30.93 each. If the taxes are deducted and allowance made for the difference in the purchasing power of money Bell rates would probably average lower than rates charged abroad. It is like comparing peaches with prunes to attempt to compare our toll rates with toll rates in government owned systems abroad. Measured by our standards for accuracy and rapidity and for development there can hardly be said to be any toll service in these government owned systems.

In considering government ownership we must not forget the purchasing power of the dollar here and abroad. Representatives of the telephone department of one of the European governments, studying conditions here, stated a few days ago that the rate of $30 a year for telephone service in their country was approximately a rate of $150 here, but we all know there is a marked difference.

Representative Lewis, of Maryland, who would put the wire companies under government control, in a speech in Congress, presented many statistical tables in an effort to secure legislation that will, if carried to its logical conclusion, bring about absolute paternalism; yet his statistics are so inaccurate, so biased, so unfair as to amount to an outrageous imposition upon the country. We find him quoting $228 a year as the rate charged for a business individual line service in New York City, leaving it to appear that that is the only rate charged.

The fact is, more than 50 per cent. of the subscribers pay $48 or less a year, while less than one-half of one per cent. pay as much as $228 for that class of service. He also quotes the rate in Trenton, N. J., as $36 a year and implies that this low rate is due to competition. As a matter of fact, Trenton has the same schedule for Bell service as has Albany—$36 for 600 calls, or $60 for unlimited service. Here is another example of the statistics quoted by Mr. Lewis. He has spoken so frequently and so warmly of the efficiency of the low rates of the telegraph service in New Zealand: 12 words for 12 cents, that I was interested and desiring to know the actual conditions inquired by cable of a reliable source. Here is the cable I received in reply:

New Zealand government tariffs for telegrams within New Zealand are (a) for urgent messages, one shilling (that is 25 cents), for 12 words or less; additional words, one penny (two cents); (b) for ordinary messages, six pence (12 cents), for 12 words or less; additional words, one half penny. Address and signature counted and charged for. In this country you know there is no charge for address or signature. Hastily drawn conclusions, you see, may be very misleading.

To my mind government ownership is a question of service and rates. Admittedly we are giving you the best service in the world. Our telephone system is regarded as a model. Experts come from all over the world to study it. Our strongest supporters and admirers are those Americans who have tried the government owned systems abroad. The best telephone service is what the American people demand. You business men of Albany would not tolerate the Hungarian or English service at any price. The progressive American never goes back to the ox-cart when a wagon is available, or to a wagon when a motor truck is available, and yet government ownership advocates are comparing the ox-cart telephone service of European countries with the motor truck telephone service of this country, as if the two were on an equal footing.

Before any American citizen commits himself to this momentous change in the structure of his government let him study well the safeguards provided for the perpetuity of the nation and consider whether they should be discarded. Let him be prepared to abolish the states and set up an absolutism at Washington.

Consider New Central Union Franchise at Findlay, Ohio.

The city council of Findlay, Ohio, has under consideration a new franchise for the Central Union Telephone Co. which will give the city 2 per cent. of the gross receipts of the corporation and also provide cheaper and it is expected better telephone service.

Condensed News Reports

Officers of Companies are Earnestly Requested to Forward Us Promptly All Financial and Other Statements as Soon as Issued, and Any Items of Interest as to Their Plants and Systems

Personal.

PROSPER HEMPSTEAD, who for 17 years has been connected with the Chicago Telephone Co., has resigned his position as district manager, with headquarters at St. Charles, Ill.

GEORGE P. PLAYER, telephone engineer for the Oklahoma Corporation Commission since its organization, has accepted a similar position with the Missouri Public Service Commission. He is now engaged in work for that commission in St. Louis, which will keep him in that city for several months to come.

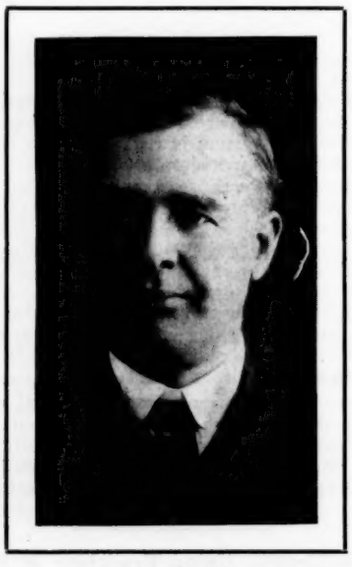
THEODORE DUGGER, commercial superintendent of the Brazos Valley Telephone & Telegraph Co., at Waco, Tex., has resigned and will move to Billings, Mont., on account of his wife's ill health. S. H. Shutt, of Temple, who has been appointed local and district manager for the Brazos Valley company, will assume Mr. Dugger's duties.

JAMES W. HUBBELL, formerly traffic manager of the Newark, N. J., district of the New York Telephone Co., has been appointed traffic engineer of the company. Mr. Hubbell was educated at Oberlin Academy and Yale University, and entered the employ of the New York Telephone Co. in 1902 as clerk in the traffic department at Brooklyn. Several months later he was appointed assistant traffic manager and later became manager of the South Brooklyn district. From his position he was promoted to traffic manager of the Main district, Brooklyn, in 1906 and was made traffic manager of the Newark, N. J., district in 1912.

JOHN T. HARRIS, for the past two years traffic supervisor for the Bell Telephone Co. of Pennsylvania, has been promoted to the office of traffic superintendent, with headquarters at Harrisburg. Mr. Harris began his telephone career as installer for the Bell company at Altoona in 1898, and in 1900 was appointed district manager at Philipsburg. About a year later he was transferred back to Altoona as district manager and in 1907 was appointed traffic supervisor, with headquarters at Harrisburg. In 1907 he was promoted to the office of division traffic manager and was later made traffic supervisor, which position he held at the time of his recent promotion.

Obituary.

J. C. SMITH, for the past seven years manager of the Lancaster Home Telephone Co., Lancaster, Ohio, passed away on February 6, at the age of 54. Mr. Smith started in the telephone business in 1885 in the employ of the Michigan State Telephone Co., at Grand Rapids. He advanced through the various stages of troubleman, lineman, and foreman to the position of manager. For two years he acted as manager for the Jackson Home Telephone Co., of Jackson, Mich., after which he became affiliated with the Cuyahoga Telephone Co., of Cleveland, Ohio.



J. C. Smith.

Mr. Smith had an unusually large number of friends and acquaintances in the Middle West and will be greatly missed by them. He had many sterling qualities, was honorable to a degree and generous to a fault, putting the interests of others before his own. Mr. Smith was a member of the Masonic Order.

New Companies and Incorporations.

WILMINGTON, DEL.—The Tri-City Automatic Telephone Co., with headquarters at Davenport, Iowa, has filed articles of incorporation with the secretary of this state with $1,500,000 capital stock. The incorporators are W. G. Taylor, C. J. Jacobs and H. W. Davis. (Not a new company.)

OXFORD, IND.—The Farmers' Mutual Telephone Co. has been organized by William Lawson, of Chase, and W. H. Phares and A. White, of Oxford, and will take over the Independent exchanges operated in Ambia, Boswell and this town.

ABILENE, KANS.—The United Telephone Co. has filed articles of incorporation with $1,500,000 capital stock. The incorporators are J. C. Wilson, of Salina; C. L. Brown, of Abilene; A. T. Rodgers, of Beloit; J. W. Gleed and J. L. Hunt of Topeka. (This is not a new company.)

BURDEN, KANS.—The Silver Creek Telephone Co. has been incorporated with $1,000 capital stock by G. H. Spillman, J. W. Asbury, A. O. Anderson, E. A. Willard, and Thomas Ferguson, all of Burden.

VICTOR, KANS.—Articles of incorporation have been filed by the Victor Telephone Co. with $10,000 capital stock. The incorporators are: F. M. Ewing, Hugh A. Hope, E. U. Ewing and Walter Swinton, of Victor, and B. H. Hanneman, of Lincoln. (Not a new company.)

DAISY, KY.—The Daisy-Vipert Telephone Co. is being organized with $2,000 capital stock by W. V. Brashear, E. G. Brashear and J. S. Long, to construct and operate a telephone system in Daisy, with local and long distance lines to nearby points, including Hazard, Quicksand and Jackson.

WELCHBURG, KY.—The Welchburg Telephone Co. is being organized here by W. H. Rader, D. F. Rader and others with a capital of $1,000 for the purpose of building a system in Welchburg and a local line to Annville.

HENNING, MINN.—The Henning-Almora Telephone Co. has filed articles of incorporation with $3,000 capital stock. The officers of the company are: President, J. M. Hursh; vice-president, J. D. Lifquist; secretary, W. J. Henderson; treasurer, G. F. Johnson, all of Henning.

PINE ISLAND, MINN.—The Pine Island Telephone Co. has been incorporated with $30,000 capital stock. The officers are: John Clemens, president; A. F. Reiter, vice-president; J. P. Keane, secretary, and F. F. Irish, treasurer. (Not a new company.)

THREE FORKS, MONT.—The Farmers Home Telephone Co. has been incorporated with $40,000 capital stock, by R. S. Dutcher, V. Lund, Jr., and G. C. Watson, all of Three Forks.

EHRHARDT, S. C.—The Ehrhardt Telephone Co. has been incorporated with $1,000 capital stock by J. L. Copeland, S. W. Copeland and Jacob Ehrhardt.

Construction.

LANCASTER, CAL.—The Antelope Valley Telephone Co. is planning to erect a new exchange building, extend its lines covering more territory, and otherwise improve the service.

GREENWOOD, NEB.—The Lincoln Telephone & Telegraph Co., of Lincoln, will erect a new exchange building in this town.

ALEXANDER, N. D.—The Dakota Western Telephone Co., of Williston, is planning to install a telephone exchange here in the spring. The town has been canvassed and over 60 subscribers have already been secured.

Financial.

ELLENDALE, MINN.—The Ellendale Rural Telephone Co. has declare a 6 per cent. dividend.

JACKSONVILLE, N. Y.—The Trumansburg Home Telephone Co. has secured permission to increase the amount of its capital stock from $10,000 to $25,000.

ATHENS, OHIO.—The Athens County Home Telephone Co. has been granted permission by the public utilities commission to issue $35,000 worth of stock, $14,000 of which will be used

for the purchase of a toll line connecting Athens with Parkersburg, W. Va., and the balance to make extensions and improvements to the property, including the purchase of a building site in this city.

NEW KNOXVILLE, OHIO.—The New Knoxville Telephone Co. held its annual meeting recently at which an 8 per cent. dividend was declared.

PULLMAN, WASH.—At the annual meeting of the stockholders of the Inland Co-operative Telephone Co. a 4 per cent. dividend was declared.

Elections.

HARRISON, ARK.—At the annual meeting of the Boone County Telephone Co. the following officers and directors were elected: W. H. Cecil, president; J. H. Fowler, vice-president; Mr. Emery, general manager and secretary; and Claude Wilson, treasurer. The directors are: W. J. Moore, Dr. J. L. Simms, H. Hinchcliff, of Little Rock; Charles Czech, A. C. Christeson and the officers named above.

WALLACE, IDAHO.—The annual meeting of the stockholders of the North Idaho Telephone Co. was held recently at which the following officers were elected for the ensuing year: Walter C. Clark, of Kellogg, president; Herman J. Rossi, vice-president; C. W. Gibbs, secretary, and P. P. Weber, treasurer. The directors are: J. C. Glahe, of Burke; J. W. Hutchins, of Mullan; Walter C. Clark, C. W. Gibbs, Stanley A. Easton, Herman J. Rossi and James F. McCarthy.

ALBANY, ILL.—At the annual meeting of the Albany Telephone Co. the following officers and directors were elected: H. R. Senior, president; W. E. Rowland, vice-president; C. A. Olds, treasurer; C. E. Peck, secretary; directors, John H. Sharer, John Keeken, C. S. Rowland, James Smith, Ed Coffey, Jr., J. W. Dinneen and S. J. Damhoff.

MT. STERLING, ILL.—The stockholders of the Mt. Sterling Telephone Co. held their annual meeting recently at which the following directors were elected: G. D. Givens, J. R. Cronin, F. D. Meyer, R. L. Webber, Richard Davis and R. L. Davis. The directors met and organized electing the following officers: President, R. L. Davis; vice-president, J. R. Cronin; treasurer, F. D. Meyer and secretary-manager, W. T. Purcell.

PETERSBURG, IND.—The Petersburg Telephone Co. has elected officers for the ensuing year as follows: Frank Jones, president; Felix Collins, vice-president; Everett Kays, secretary, and William Stork, treasurer.

WARSAW, IND.—At the annual meeting of the stockholders of the Commercial Telephone Co. directors were elected as follows: Simon J. Straus, Odel Oldfather, of Ligonier; J. D. Widaman, J. S. Baker, S. W. Chipman, Walter Chipman, J. W. Scott, of Warsaw. The officers elected were: President, Simon J. Straus; vice-president, J. D. Widaman; secretary, J. S. Baker; treasurer, S. W. Chipman. Plans for improving the service were discussed and an expenditure of $6,000 authorized for the purchase of new cables.

BRADDYVILLE, IOWA.—At the annual meeting of the Farmers Mutual Telephone Co. the following officers were elected for the ensuing year: President, H. Douthit; vice-president, William McKee; secretary, C. G. Maxwell; treasurer, Bert Yaple. J. Fishell, J. Russell and W. McDonald were elected trustees.

BRISTOW, IOWA.—At the annual meeting of the Farmers Mutual Telephone Co., officers for the ensuing year were elected as follows: President, T. A. Gough; vice-president, H. C. Newberry; treasurer, J. H. Richardson; secretary, J. F. Junghunz.

DAYTON, IOWA.—At the annual meeting of the Dayton Mutual Telephone Co. the old officers and directors were all re-elected for another year, as follows: John W. Green, president; Carl Will, vice-president; J. A. Haleen, secretary; E. M. Lundien, treasurer; S. A. Burnquist, manager. These gentlemen also constitute the board of directors.

GRINNELL, IOWA.—At the annual meeting of the Interior Telephone Co. the following board of directors was elected: C. W. H. Beyer, Charles R. Clark, Wesley Manatt, H. G. Lyman, H. L. Beyer, J. P. Lyman and L. G. G. Peirce. The directors then met and elected the following officers: President, H. L. Beyer; vice-president, Charles R. Clark, of Montezuma; secretary, H. G. Lyman; treasurer, C. W. H. Beyer.

RUSSELL KAN.—The annual meeting of the Russell Telephone Co. was held recently and directors for the coming year elected as follows: H. A. Frier, H. M. Laing, A. A. Roth, Henry Krug, F. M. Vanderbur, Charles E. Hall, C. A. Mermis, V. K. Hoover and Ira S. Fleck. The directors met subsequently and elected the following officers: H. A. Frier, president and manager; H. M. Laing, vice-president; Ira S. Fleck, secretary, and V. K. Hoover, treasurer.

HOYES, MD.—At the annual meeting of the stockholders of the Garrett County Telephone Co. the following directors were elected for the ensuing year: W. A. Smith, A. D. Naylor, Otho S. Eike, Joseph H. McRobie, Clarence V. Guard and J. Madison Durst. The directors of the company organized following the meeting of the stockholders by re-electing W. A. Smith, president; C. W. Friend, vice-president; W. L. Thomas, of Oakland, secretary, and D. S. Custer, treasurer.

GRAND LEDGE, MICH.—The annual meeting of the Grand Ledge Telephone Co. was held recently, at which officers and directors were re-elected as follows: President, Clark Smith; vice-president, J. W. Ewing; secretary, treasurer and general manager, G. M. Every; directors, John Brunger, Harry Tanner, C. A. Brunger, W. H. Oding, Claude Barton and A. Munn.

HOLLOWAY, MICH.—The annual meeting of the Fairfield Co-operative Telephone Co. was held recently and the following officers elected for the ensuing year: H. R. Kerr, president; Wm. Sachs, vice-president; Thomas B. Boyle, secretary; August Holzheimer, treasurer; Otto Sachs, Julius Schultz and Patrick McGeary were chosen as directors.

LUDINGTON, MICH.—At the annual meeting of the United Home Telephone Co. all the old directors were re-elected. They are: W. A. Cartier and William Rath, Ludington; John H. Moore, Thomas Hume, John G. Emery, Jr., Thomas Bromley, Jr., W. H. Mann and William Hunroe, Muskegon; C. L. Churchill, Shelby; J. B. Conger, New Era; H. S. Newton, J. K. Flood and W. R. Roach, Hart; G. F. Sands, Pentwater, and E. B. Fisher, Grand Rapids.

PERRY, MICH.—The annual meeting of the Shiawassee Telephone Co. was held recently, at which the following officers were elected: C. M. Spalding, president; John Beardsley, secretary; Bert Smith, treasurer. L. A. Clarke was chosen manager.

ELLENDALE, MINN.—The annual meeting of the stockholders of the Ellendale Rural Telephone Co. was held recently, at which officers for the ensuing year were elected as follows: President, J. D. Nolan; vice-president, Andrew Gregerson; secretary and treasurer, E. M. Thompson.

FREMONT, NEB.—The Farmers' Telephone Co., of Dodge county, has elected the following officers for the ensuing year: Fred Howe, president; J. F. Drenguis, vice-president; C. L. Kelly, treasurer; T. H. Fowler, secretary; P. B. Cumings, manager. The executive committee is composed of H. S. Spath, J. F. Drenguis and Henry Tank.

HOOPER, NEB.—The board of directors of the Hooper Telephone Co. met recently and organized by electing the following officers: M. A. Uehling, president; Wm. Meyer, secretary; W. C. Hartung, treasurer; M. E. Shipley, manager.

KEARNEY, NEB.—The Union Valley Telephone Co. held its annual election recently, which resulted as follows: W. D. Thornton, president; William Rosso, vice-president; Georgy Bischel, secretary-treasurer.

MILFORD, NEB.—The annual meeting of the Farmers Mutual Telephone Co. and the election of officers for the coming year took place, which resulted as follows: President, John P. Stolz; vice-president, Geo. Mienberg; secretary-treasurer, A. J. Fuller; manager, Frank Ficke. The directors of the company are: Wm. Gode, John Klintwith, W. B. Fosler, Wm. Brandhorst, Albert Matzke.

SWEDESBORO, N. J.—At the annual meeting of the stockholders of the Peoples Rural Telephone Co., G. W. F. Gaunt, W. H. Wolf, F. B. Davis, Elmer Bradshaw, William Richman, S. A. Ridgway, Geo. H. Horner, G. M. Ashton, J. Clark Helms and W. K. Sloan were elected directors. The board organized by electing G. W. F. Gaunt, president; William Richman, vice-president; W. H. Wolf, treasurer, and W. K. Sloan, secretary.

BROCKPORT, N. Y.—At the annual meeting of the Brockport Telephone Co. the following officers were elected for the ensuing year: President, George R. Fuller; vice-president, Henry Morgan; secretary and treasurer, Charles M. Beattie.

CANASTOTA, N. Y.—At the annual meeting of the Farmers Telephone Co. the following directors were elected: R. D. Button, E. Homer Percival, S. B. Taylor, William S. Near, M. E. Barlow, David Bender and John H. Wilson.

CATO, N. Y.—At a meeting of the board of directors of the Cato & Meridian Telephone Co. the following officers were elected: President, Edward Kennedy; vice-president, James Mehan; manager, William W. Legg, Jr.; secretary and treasurer, Frank Casey.

ELMIRA, N. Y.—At the annual meeting of the York State Telephone Co. the following officers were elected for the en-

suing year: President, H. C. Mandeville; vice-president, H. F. Stevens; secretary, H. C. Ormsbee; treasurer, W. W. Nicholson. The following are the directors: H. C. Mandeville, E. O. Eldridge and M. H. Murphy, of Elmira; Thomas B. Crary, of Binghamton; W. W. Nicholson, of Syracuse; H. F. Stevens and H. C. Ormsbee, of New York City.

GLOVERSVILLE, N. Y.—At the annual meeting of the Glen Telephone Co. the following directors were elected: Lucius N. Littauer, David A. Hays, Edward S. Parkhurst, Edward A. DeGraff, Fred Linus Carroll, G. G. W. Green, Edward Edwards, John Martin, Henry Veghte, W. A. Smith, G. Levor, J. S. G. Edwards and Edward C. Evans. At a subsequent meeting of the directors the following officers were elected: President, J. S. G. Edwards; vice-president, Lucius N. Littauer; secretary, Edward S. Parkhurst; treasurer, David A. Hays; general manager, G. G. W. Green; assistant manager, V. R. Folmsbee.

MIDDLETOWN, N. Y.—At the annual meeting of the Middletown Telephone Co. the following officers were elected: President, Dr. M. C. Conner; vice-president, Galen Coleman; treasurer, George B. Potter; secretary, W. C. Ramsdell. The officers, together with Timothy F. Walsh, D. G. Comings, Edson Coleman, Samuel S. Shorter and Herbert Barber, constitute the board of directors.

ROCHESTER, N. Y.—The Rochester Telephone Co. held its annual stockholders' meeting recently and elected the following directors: Horace F. Atwood, H. Wheeler Davis, Frank M. Ellery, Gustave Erbe, George R. Fuller, Fred C. Goodwin, Robert H. Hefford, Morris D. Knapp, H. H. Littell, W. Roy McCanne, George D. Morgan, John Craig Powers, George F. Roth, George Seager, Peter A. Vay, Albrecht Vogt, J. F. Warner, Fred W. Zoller and Carl F. Lomb. The directors organized and elected the following officers for the ensuing year: President, George R. Fuller; vice-president, George F. Roth; secretary, Fred C. Goodwin; treasurer, Charles M. Beattie.

ROCHESTER, N. Y.—The Interlake Telephone Co. held its annual meeting recently and elected the following officers for the coming year: President, George R. Fuller; vice-president, George R. Roth; secretary and treasurer, Charles M. Beattie.

TROY, N. Y.—The stockholders of the Commercial Union Telephone Co. held their annual meeting recently and elected the following directors: John F. Hartigan, James O'Neil, William Connors, Cornelius V. Collins, Thomas Vail, Frank McCarthy, Peter McCarthy, James H. Caldwell, William C. Geer, W. D. Mahoney and Arthur MacArthur, of Troy; Edgar T. Brackett, Saratoga Springs; H. F. Stevens and W. B. Woodbury, New York; I. H. Griswold, Albany. The directors elected James H. Caldwell, president; William Connors, first vice-president; H. F. Stevens, second vice-president; S. C. Ormsbee, New York, secretary; W. W. Nicholson, Syracuse, treasurer.

NEWARK, OHIO.—At the annual meeting of the Newark Telephone Co. the following officers and directors were elected: R. W. Smith, president; E. T. Rugg, vice-president; C. S. Spencer, secretary; W. S. Weiant, treasurer; directors, Judge Robbins Hunter, Harry Swisher and George B. Sprague.

ARIEL, PA.—The stockholders of the Paupac Telephone Co. held their annual meeting recently and elected the following directors: Dr. L. P. Cooke, Howard A. Cross, M. J. Emery, E. P. Jones, C. F. Kellam, B. F. Killam, F. A. Peet, Dr. A. J. Simons, Frank J. F. Warg, Dr. H. C. White, Earl Rockwell and J. W. Sandercock. Immediately after the meeting the directors met and organized by re-electing the following officers: President, Dr. L. P. Cooke, of Hawley; vice-president, B. K. Killam, of Paupac; secretary, treasurer and general manager. M. J. Emery, of Ariel.

HOOVERSVILLE, PA.—At the annual meeting of the Shade Telephone Co. the following officers and directors were elected for the ensuing year: J. A. Berkebile, president; C. W. Wagner, secretary; Howard Powell, L. K. Berkebile, William Wechtenhiser, J. H. Statler and J. E. Johnson, directors. The company is planning to make a number of extensions during the year and will greatly improve the service generally.

INTERCOURSE, PA.—The Intercourse Telephone & Telegraph Co. held its annual stockholders' meeting recently, electing the following officers: President, John M. Beam; secretary, Willis R. Knox; treasurer, Martin D. Kurtz; vice-president, Chester A. Diller. The following directors were also chosen: John Leaman, Augustus Rodgers, P. P. Buckwalter.

MAINVILLE, PA.—The Mainville Telephone Co. has elected the following officers and directors for the ensuing year: H. C. Krapp, president; L. W. Shuman, vice-president; James Platt, secretary; J. C. Shuman, treasurer. Directors, F. P. Gruver, A. F. Deaner, J. S. Shuman, G. W. Shuman, Edward Fisher, H. C. Krapp, James Platt, C. F. John, M. M. Geiger, David John and Harrison Miller

WESTERLY, R. I.—The annual meeting of the Westerly Automatic Telephone Co. was held recently, at which the following officers were elected for the ensuing year: President, John Champlin; vice-president, A. B. Crafts; treasurer, Charles E. Sherman; secretary, William Sheffield; general manager, John Champlin. The executive committee is composed of John Champlin, H. C. Knight and Dexter B. Potter. The directors are: J. H. Macomber, J. Irving Maxson, Robert Drysdale, T. J. Bannon, George L. Stillman, Charles E. Sherman, John Champlin, H. C. Knight, Frederick P. Lewis, Dexter B. Potter and Charles T. Howard.

WATERTOWN, TENN.—The stockholders of the Watertown Home Telephone Co., at their annual meeting, re-elected all of the old directors for the ensuing year. After the stockholders' meeting the directors elected officers for the ensuing year as follows: Robert Patton, president; J. B. Hudson, vice-president; T. A. Young, treasurer; R. N. Given, secretary and manager.

AUBURNDALE, WIS.—The Auburndale Telephone Co. held its annual meeting recently and elected the following officers and directors: President, J. T. Holland; treasurer and manager, N. M. Berg; secretary, R. A. Connor; directors, J. C. Kieffer and A. J. Frederich of Auburndale; D. McVicar of Vesper and James Mercer of Arpin.

ELKHORN, WIS.—The State Long Distance Telephone Co. has elected the following directors for the coming year: E. E. Cowles, Fred Hemstreet, George Renner, C. H. Wiswell, H. H. Tubbs, D. D. Finch, and L. R. Whitmore. At the directors' meeting the following were elected officers: President, E. E. Cowles; vice-president, C. H. Wiswell; secretary, D. D. Finch; treasurer, George Renner.

FOND DU LAC, WIS.—The Fond du Lac Rural Telephone Co. held its annual meeting recently and elected the following officers for the ensuing year: W. C. Ray, president; J. M. Dowd, vice-president; W. T. Reilly, secretary and treasurer; John Reilly, manager. James Whelan and William Ebert were elected to the directorate.

LANCASTER, WIS.—At a recent meeting of the Farmers Telephone Co. the following officers were elected for the coming year: Anton Vogt, of Beetown, president; George Weiland, of Lancaster, vice-president; T. S. Metcalf, of Glen Haven, treasurer; C. W. Hampton, Lancaster, secretary. The officers, together with E. L. Chandler, Glen Haven; Rolla Kinney, Potosi; Frank Oakleaf, Potosi, and Charles Case, Lancaster, constitute the board of directors. J. A. Jamison, of Beetown, was elected general manager.

MISHICOT, WIS.—The stockholders of the Mishicot Telephone Co. held their annual meeting recently and elected the following officers and directors: President, Wm. Breuning; vice-president, Dr. G. Karnopp; secretary and treasurer, A. Holst; directors, H. Wilkowski, Wm. Breuning, A. Holst, A. Stroufgruber. Dr. Karnopp and F. Creton.

PULLMAN, WASH.—At the annual meeting of the stockholders of the Inland Co-operative Telephone Ass'n the following board of trustees was elected for the ensuing year: E. H. Bryan, R. G. Lyle, J. W. Darland and C. H. Kincaid.

SHAWANO, WIS.—The Red River Telephone Co. held its annual meeting recently and elected the following officers for the ensuing year: Charles Moede, Richmond, president; Fred Kuhn, vice-president; J. T. Callahan, secretary; Julius Erdman, treasurer.

Franchise.

ODON, IND.—The town trustees have granted a 20-year franchise to the Flint-Kyle Telephone Co., which recently took over the holdings of the Interstate Telephone Co.

BROWNWOOD, TEX.—The Brown Telephone & Telegraph Co. has petitioned the city council for a franchise to install and maintain a telephone exchange.

Miscellaneous.

HINDMAN, KY.—The Hindman Telephone Co. is being reorganized with the view of increasing its capital stock and making some necessary extensions and improvements. A number of the lines will be rebuilt and others completely overhauled. B. M. Craft is manager of the company.

CENTER, TEX.—The Sabine Valley Telephone Co. has filed a certificate of dissolution.

KENOSHA, WIS.—The Wisconsin Telephone Co. has taken over the plant of the Kenosha Home Telephone Co., which has been operated for the past seven years as one of the subsidiaries of the Wisconsin company.